

# SD Times

The Industry Newspaper for Software Development Managers

SOFTWARE DEVELOPMENT

SPECIAL REPORT

*Is the Browser Singularly Capable Of Everything?*

page 30

JUNE 15, 2007 • ISSUE NO. 176

www.sdtimes.com • \$7.95

## It's Lean, But Is It Agile?

Iterative methods are closely aligned

BY JENNIFER DEJONG

Kent Beck was giving a talk about agile software development to a group of business executives, when he noticed one audience member who just wasn't engaged.

"The guy's arms were folded and his body language said he didn't like my message," recalled the inventor of Extreme Programming (XP). But when Beck made reference to the lean development approach, the guy's face lit up. "Why didn't you tell me [agile and XP] are lean manufacturing for software?" he asked Beck after the talk.

But are lean software development and agile software development—of which XP is the most prominent example—one and the same?

They both are iterative approaches to developing software, and in some respects lean and agile are closely aligned, said Beck. Several other agile experts interviewed by SD Times agreed. But when asked whether lean software development is an agile methodology, alongside the others that fall under the agile umbrella—Adaptive, Crystal, Dynamic Systems Development Method, Feature-Driven Development, Scrum and XP—only one of the experts said yes.

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## HP, IBM Join Battle for SOA Mindshare

One focuses on products, while other emphasizes services



HP's governance platform is built on emerging standards, says Avrami Tzur.

BY DAVID WORTHINGTON

The market for SOA products and services is in a rapid growth stage, where the biggest companies are eager to cash in and gain mindshare.

Hewlett-Packard and IBM let loose a flurry of announcements about new products and services for their respective SOA platforms last month, on the same day. Both software giants—HP new to that position, thanks to its acquisition of Mercury—will be offering more guidance, services and tools to customers undertaking SOA

deployments, and seemingly reaffirmed the notion that IBM's core competency is services, while HP is ahead in products.

In late May, HP announced incremental updates to its Systinet SOA governance platform, HP Change Impact Testing, HP Business Process Testing products, and SOA management software.

Systinet 2.51 includes new life-cycle management and workflow capabilities to improve service controls. HP has focused on integrating products to enable enterprisewide policy manage-

ment for design and runtime, one example being the combination of Systinet, which defines policies, and SOA Manager, which enforces them. Policies are reused for services throughout their life cycle.

HP's governance platform is built on emerging standards, according to Avrami Tzur, vice president of HP's SOA technology solutions group. "Governance Interoperability Framework and standards such as WS-PolicyAttachment are cornerstones of our

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## ColdFusion Heats Up

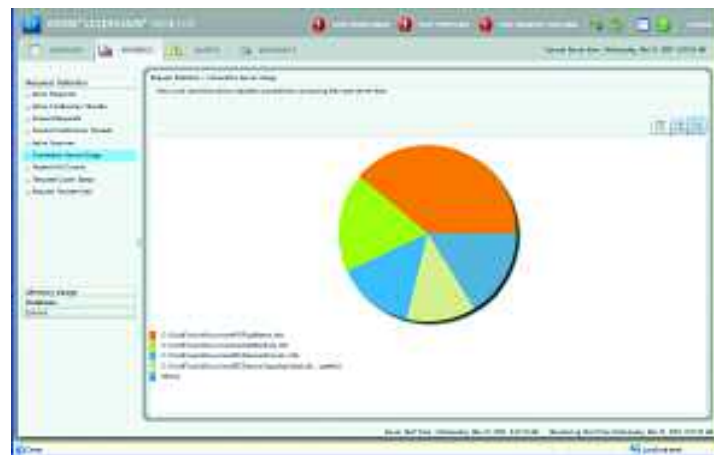
First update in two years supports latest Java

BY ALEX HANDY

ColdFusion is overdue for some heat—and after two years, it's going to support the latest versions of Java, and will have enhancements for working with Portable Document Format (PDF) documents.

Since Adobe Systems acquired Macromedia in 2005, the ColdFusion software development framework and application server had been pushed to the side by the "buzz" of Flex and Flash and Apollo. But in late May, Adobe finally released a public beta of a revamped and retooled ColdFusion, version 8. The company hopes that new back-end integration support will help to push the framework back into the limelight.

Tim Buntel, senior product marketing manager for ColdFu-



Adobe has added monitoring tools to version 8 of ColdFusion, giving developers a better window into the functions of their applications.

sion, said that this new version of the software shows the results of a hefty injection of Adobe's DNA into the project. He said that the primary change this time around

has been the addition of numerous new crossovers and capabilities for the ColdFusion suite of software. These include new

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## Ecma Evolves JavaScript For Objects

BY ALEX HANDY

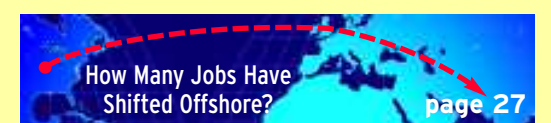
After 12 years, JavaScript is making the jump to 2.0, and a lot has changed since this language was first released in December 1995, in a beta of the Netscape 2.0 browser.

In the meantime, Microsoft swamped the browser market, Ecma International standardized JavaScript, and XML became a reality. JavaScript has slowly grown to become the most important language for Web developers, thanks to the copy-and-paste nature of Web code, and the popularity of mixing Asynchronous JavaScript and XML, also known as AJAX. Over

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# Telelogic Refines Meaning of SOA

Renewed focus on architecture is reflected in new, updated tools

BY JEFF FEINMAN

Service-oriented architecture, or SOA, has become a guiding point on the software development map, but even as some in the industry question what exactly the term means, the tools for implementing it are coming fast and furiously.

Late last month, Telelogic announced the new System Architect For SOA and the updated Tau 3.1, with the aim of expanding SOA workflow capabilities through new plan-

ning and implementation features in the products.

Telelogic System Architect For SOA allows organizations to model business processes and relate them to new and existing services, while analysis capabilities within the tool help developers reuse services; Tau is one of the company's modeling solutions.

In most senses, SOA advocates a loose coupling of services that can easily be swapped in or out with other services to help businesses more easily adapt to changing market conditions. But the surge of interest in SOA has created confusion, according to Telelogic's chief strategist Jan Popkin.

"I think SOA right now is too broad a term," Popkin said. "I might be selling you .NET Framework 3.0, which has a bunch of SOA pieces in there, but that's different from System Architect. They both use SOA terminology. I think there's a lot of people now who are interested in the word SOA, but they don't know why."

Popkin sees the term as an architectural principle rather than a set of wares and said that the true value of SOA lies

Service Component	Service	01/06/2008	01/12/2008	01/04/2009	01/12/2009	01/04/2010	01/12/2010	01/04/2011	01/12/2011
Service Component	Service	Active	Active	Active	Active	Active	Active	Active	Active
Finance	Finance	Active	Active	Active	Active	Active	Active	Active	Active
Personnel	Personnel	Active	Active	Active	Active	Active	Active	Active	Active
Inbound Correspondence	Inbound Correspondence	Active	Active	Active	Active	Active	Active	Active	Active
Outbound Correspondence	Outbound Correspondence	Active	Active	Active	Active	Active	Active	Active	Active
Service Component	Service	Active	Active	Active	Active	Active	Active	Active	Active
Finance	Finance	Active	Active	Active	Active	Active	Active	Active	Active
Personnel	Personnel	Active	Active	Active	Active	Active	Active	Active	Active
Inbound Correspondence	Inbound Correspondence	Active	Active	Active	Active	Active	Active	Active	Active
Outbound Correspondence	Outbound Correspondence	Active	Active	Active	Active	Active	Active	Active	Active

System Architect For SOA offers Service Roadmap Reports that allow companies to form an analysis of financial details and reports for the near-to-distant future, with notices of opportunities as well as problems.



SOA is an architectural principle, not a collection of wares, says Telelogic's Popkin.

in its future promise of agility. Such architectures allow an organization to look at how it operates and then analyze what parts of particular applications should be utilized. "More than an API, [SOA] has got to have something useful to support," he said. "It should help answer the questions

"What services should I pick, and why?"

Popkin said that SOA should be approached on three levels. The first is the architectural discussion, delineating what services should be picked and why. The second is the "standards plumbing," which consists of choosing the

tools that expose Web services. The third is the "process, people and legacy" piece, which is figuring out how and where people should work to create an agile, reusable environment.

The federal government is pushing SOA as an architectural principle for interagency sharing, while the aerospace and defense industry has been discussing it for a long time, Popkin claimed. The commercial market is also talking about SOA as an architectural principle, as IBM, Microsoft and Oracle are pushing it very heavily, he added.

In support of Popkin and Telelogic's vision of SOA are the new edition of System Architect and the Tau update. "This is System Architect as you know and love it, with an add-on piece on top of it," Popkin said. "There are new modeling diagrams, a series of diagrams that support SOA directly, a series of reports that affect SOA directly, and a series of specialized analysis for SOA."

Tau 3.1, the newest version of the company's model-based development solution, offers automated import and generation of WSDL (Web Services Description Language), XSD (XML Schema Definition) and XML frameworks, along with expanded Java code and C# language support. ■

## Help Wanted: SOA Architect

Smart career path for software developers?

BY JENNIFER DEJONG

Search on the term "SOA Architect" and IT job site Dice (www.dice.com) will return about 1,000 listings.

The job title, almost unheard of just a few years ago, is gaining currency as companies get down to the business of building service-oriented architectures (SOAs), said Interarbor Solutions principal analyst Dana Gardner.

According to listings on Dice, as well as those posted on the Internet job search engines CareerBuilder and Monster, the position requires 10 or more years of experience as a software developer, often in a specific industry. Expertise in database, project management, systems architecture and transaction processing is also

key, as are leadership and problem-solving ability. The soft skills a good SOA architect should possess can be difficult to nail down. But a May 18 job listing on Monster summed them up: "the ability to interact effectively with senior management, business experts, software development teams, and end-users."

Gardner said the emergence of the role is significant because it ensures that SOA practices will continue to mature, without facing a human resources crunch. The SOA architect position also provides a career path for developers who work for companies moving coding positions offshore, he said—or those who simply fear their employers will do so. (See related stories, page 27.)

### PLANNING THE CITY OF SOA

What SOA architects do is still being defined. Gardner likened the responsibilities to those of a city planner. "You are not just building a single building. You are thinking about the entire city: the sewage, the traffic, the bridges and tunnels, the parking."

Drafting a plan of the city's infrastructure is essential, but the SOA architect role isn't all about the plumbing, according to Neil Macehiter, a director for U.K. analyst firm Macehiter Ward-Dutton.

"The challenge that many SOA architects face is more around understanding what the services are that need to be delivered in a business-meaningful way," he said, according to the transcript of a



The hard part, says IBM Rational's Locke, is finding the required skills in one person.

March 23 podcast, conducted by Interarbor. "There is a business strategy, there are business processes and priorities, and there are the services we need at a business level." Once those issues have been addressed, he said, the SOA architect can define how those services are deployed in technology terms.

Knowing how a business or  
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## Navigating APPLICATION LIFECYCLE MANAGEMENT



### “THIS IS NOT GOOD”

FIG. 9.—CAPTAIN BLINDSIDED AS FOG SETTLES OVER DEVELOPMENT PROCESS.  
Nothing runs application development aground faster than a lack of visibility.

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# Sun Studio 12 Ties Loose Threads

## New version plays well with Linux, multicore

BY ALEX HANDY

Sun Microsystems is counting threads.

The company held a joint press conference on May 25 with Intel, claiming that the companies were on top of multithreaded development problems, and that the time for everyone else to catch up had arrived. A week later, Sun released Sun Studio 12, an integrated development environment and set of compilers that the company claims will help developers take full advantage of multicore processors, such as Intel's next-generation Xeon Woodcrest chips.

Jeet Kaul, Sun's vice president of developer products and programs, said that the new Sun Studio is the first to be on an equal footing running on either Linux or Solaris, and is meant for programmers working in non-Java languages, as well as Java developers. While Sun Studio 12 is built on top of NetBeans, it also contains support for C/C++ and Fortran, in addition to Java.

But the biggest improvements in version 12, said Don Kretsch, senior director of Sun developer tools, are the new features designed to ease the creation of multithreaded applications.

"If you want to write multithreaded code to take advantage of multicore systems, multi-

threading is difficult to write. Our compilers can automatically parallelize loops," claimed Kretsch. "Our debugger is multithread aware."

Also, Kretsch noted, Sun is including a new thread analyzer tool in Sun Studio 12. "This is a program that will run dynamically as your program is running, and collect data on race conditions and deadlock conditions, anything that will cause you to run into nondeterministic problems. It can show you where memory access contention occurred," he explained. "The programmer can go back and say, 'This line of code caused this deadlock condition.'"

Sun Studio 12 also includes Sun's standard template library for C++. Kretsch claimed that those libraries are multithread-aware, and the templates should help to speed the development process for many developers that are still grappling with parallel programming.

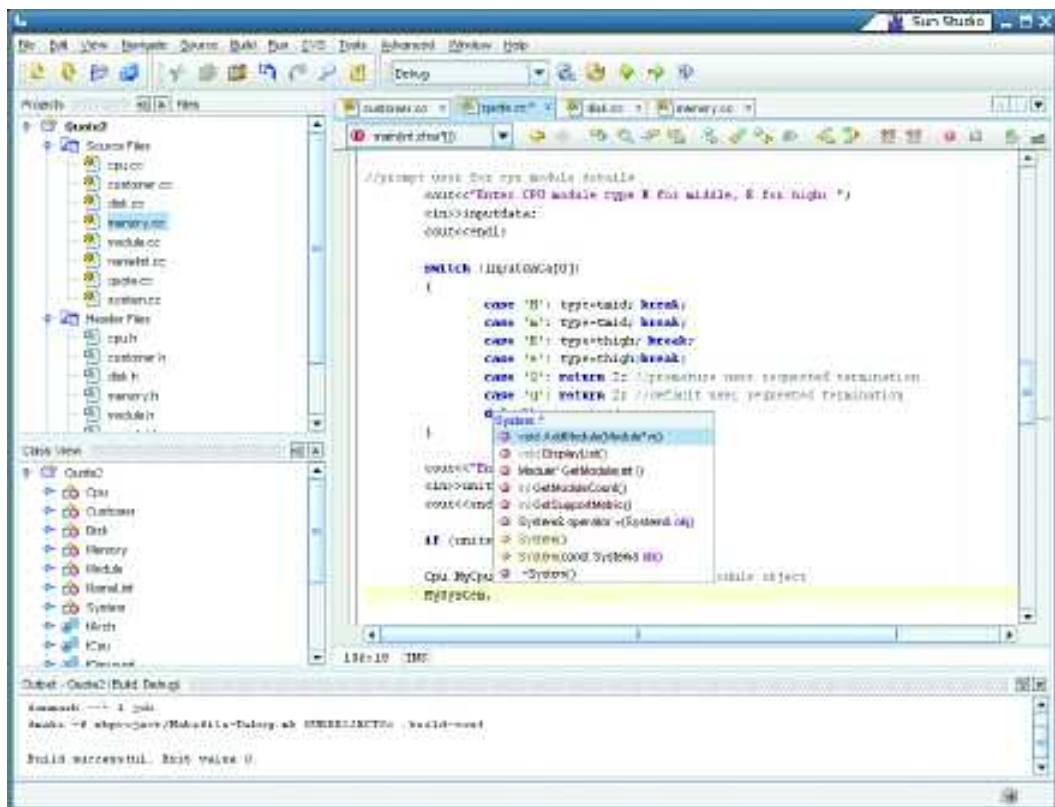
At the May press conference, Shekhar Borkar, director of microprocessor research at Intel, noted that both companies are pushing tools and training into the marketplace, to advance the state of multithreaded programming.

"You take any application and try to parallelize it, and there is a diminishing return

after a while," Borkar observed. You can reduce the amount of serial code so you can parallelize it. You can have multiple tasks running at once. You can build in application-level parallelism. There's an abundance of parallelism still left out there that has not been used by the software industry. I don't think we're going to build the chips unless the software is ready. Software guys [have] at least two years to double from two to four [cores]. If the software doesn't follow this, then the chip is a paperweight."

Sun's Kaul hopes that this new version of Sun Studio will not only spur Solaris developers toward building more parallelism into their applications, but also encourage Linux developers to follow suit. Sun Studio 12, he said, allows programmers to write once and deploy to either Solaris or Linux, with no code changes needed.

Kretsch and Kaul agreed that this edition of Sun Studio includes the results of collaboration between the companies. While code produced in Sun Studio 12 can be optimized to run on Sun's forthcoming Intel-based servers, the underlying technology in Sun Studio 12 lets developers gain those same speed benefits when running code on any Intel-based hardware as well. ■



Sun Studio 12 offers new ways to troubleshoot multithreaded applications, thanks to a thread-aware debugger.

## NEWS BRIEFS

### NEW PRODUCTS

IBM has created a free Web application development tool with a user interface that requires no programming skills. **DevEngage** can be used to develop online forms for human resources, finance and marketing tasks. It uses AJAX and can develop forms on any Web browser . . . CollabNet has released what it is calling the first-ever distributed software development solution native to the Eclipse IDE. **CollabNet Desktop, Eclipse Edition** allows software engineers to collaborate globally, handling central tracking and management of source code and projects . . . Rich Internet application platform provider Curl has announced a beta version of the **Curl Run Time Environment** for Macintosh. The Curl RTE is part of the Curl RIA platform, which allows developers to implement enterprise-grade Web-based applications. The Curl environment offers support of 2D and 3D graphic libraries, and for all standard networking protocols and server-side architectures, such as HTTP, SOAP, Unicode and XML . . . Google released in April the **Google Data APIs Objective-C Client Library**, aimed at opening up Google services for Cocoa applications and XCode projects. The Google library for Mac OS X allows the use of the company's Base, Calendar, Notebook and Spreadsheets services, as well as generic Atom feeds such as Blogger. Support for other Google services is expected at a later date.



### UPDATES

4D, a San Jose-based provider of an integrated development platform for building and deploying business applications, announced version 1.1 of the **4D Web 2.0 Pack**, a tool set that lets 4D developers create rich Internet applications. The update allows users to integrate data and graphics with new matrix objects, and includes new tools to help query, filter and search data . . . Sybase has embedded extract, transform and load (ETL) capabilities into version 12.7 of the **Sybase IQ** analytics server, with the aim of providing rapid modeling, a scalable ETL server architecture, and enhanced security and usability . . . Yasu Technologies has announced a beta of a NetBeans version of its **QuickRules** business rules authoring and management tools. QuickRules is based on Java BI (business integration) and offers decision automation capabilities. The company expects to release QuickRules for NetBeans later this year . . . Shunra Software, a provider of network simulation solutions, has released **Shunra VE 5.0**. The newest version of the network simulator offers root cause analysis, which can provide drill-down metrics on all transactions individually. It also allows for simultaneous testing by multiple teams, along with test backup and disaster recovery scenarios . . . Windows installation provider InstallShield has released **InstallShield 2008** for Windows Vista. With InstallShield 2008, UAC prompts are eliminated, reboots are minimized and installations can be pretested with "Certified for Windows Vista" validation testing. InstallShield 2008 also offers new end-user dialog themes for basic MSI (Microsoft Installer) projects, and information for how to avoid common installation problems . . . Baltimore-based AVIcode, a provider of .NET application monitoring solutions, has released **Intercept Studio 4.1**, the company's flagship solution. New features include expanded monitored resource support, monitoring calls to IBM DB2 data servers. It also provides a complete graphical topology that displays the dependency between components of a distributed application, and improvements to the user interface, including a link to MSDN.

### PEOPLE

BZ Media, publisher of SD Times and Software Test & Performance magazine, has added three members to its staff. **Dan Gaiman** has joined BZ Media as a sales associate. Gaiman joins the company after graduating recently from the University of Michigan. **Jill Campbell** is the new events marketing manager. Campbell most recently served as a promotion manager in the business technology group at CMP Media. **Whitney Grekin** joins the company's marketing team as an intern for the summer of 2007. In the fall, Grekin will be entering her junior year at Quinnipiac University, majoring in public relations. ■



# OpenJDK by the Numbers...Mostly GPLv2

BY ALEX HANDY

Mark Reinhold has been given more work than his job description at Sun Microsystems covers. With the other members of the temporary governance commit-

tee charged with guiding Java into the open source world, he's now saddled with the responsibility of deciding the language's short-term future. As such, his day job as chief engineer for the

Java 2 platform at Sun has forced him to look at the language with the eyes of a lawyer, rather than of an engineer.

Reinhold's been trying to bring a community process to

the OpenJDK since it was released in May, but he's not the only one who's been busy. The Linux community has already gotten to work on the newly open language.

Reinhold said that the Gentoo Linux community had installable source packages ready for download on the same day that the OpenJDK was released. Additionally, the Red Hat team was close behind in its release of an installable source package for its own version of Linux. Red Hat has since detailed plans to build around the OpenJDK for future releases of Java on its platform.

But the OpenJDK itself is still encumbered by intellectual property issues, and Reinhold said that the community and Sun will have to work together in order to produce a 100% Pure GPLv2 Java.

"The vast majority of files are under the GPLv2, with the class path exception," said Reinhold. That exception allows these GPLv2 libraries to be linked together with non-GPL software at compile time, without extending the requirements of the GPL to those non-GPL linked files. "Some are under the pure GPL. A small number, 4 percent, are under open source licenses that are not the GPL. In many cases, these are the Apache license 1.1 or 2. There are different views about whether the Apache licenses are compatible with the GPL. Our legal analysis is still under way. Our goal in the long term is to have a complete GPLv2 JDK." ■

## FarPoint Spread BizTalk

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FarPoint Spread for BizTalk can automatically disassemble Excel (XLS) files in your BizTalk process.

## WHAT'S IN THE OPENJDK?

The OpenJDK features a mix of licenses at the moment. Mark Reinhold, chief engineer for the Java 2 platform, presented these numbers at JavaOne in May.

- The OpenJDK contains 25,169 files.
- Sun does not have the rights to distribute 894 files (4 percent) as source.
- 1,885 files (8 percent) are not under GPLv2.
- 22,390 of the files are GPLv2.

Those files that Sun cannot distribute as source code are:

- Font rasterizer
- Graphics rasterizer
- Sound engine
- Certain cryptography algorithms
- Portions of SNMP management code
- Imaging APIs



# Updated Tool Gives Managers 6th Sense

BY ALEX HANDY

One doesn't have to be a good manager to tell if employees are doing their jobs. But having deep insight into what it is, exactly, that each developer is actually working on can turn one into a great manager. That's why on June 11, 6th Sense Analytics updated its SaaS-based software development analytics tools to focus on projects as a whole, giving managers further illumination as to which tasks are taking developers the longest to finish.

6th Sense is a hosted application that communicates with plug-ins that work with more than two dozen IDEs. This plug-in tracks all of the actions taken by a developer during his or her workday. Todd Olson, 6th Sense's co-founder and CTO, explained that the product measures two types of activity in the IDE: active time and flow time.

The first of those measurements monitors the actual work being done inside and outside the browser: Is the developer awake, typing, moving the mouse and interacting with the repositories? The second of those metrics kicks in only once the developer has hit his or her stride.

"This comes out of a lot of academic research, which says that when a knowledge worker is focused for 20 minutes or more on a project, they're in the flow [and] they're fully immersed," said Olson. "We're measuring these flow-time units. This can also help you determine whether or not there are environmental issues that are causing distractions."

## HOW'S EVERYBODY DOING?

Since the software is offered as a service, anyone on the development team can log in and check in on his or her own productivity. Those higher in the development cycle can see the broader view. Olson observed that developers and managers could put this information to use when estimating their next project.

In the new version of the 6th Sense analytical system, Olson and team have added fine-grained project monitoring, which gives the software the ability to monitor specific tasks within a project. When an enhancement request for a specific project is made, the developers who are working on the task are

then monitored and associated with that project in the metrics collected by 6th Sense.

Olson stated that the 6th Sense Analytics package costs US\$960 per user per year. He

added that the software-as-a-service, or SaaS, model allows the product to easily work with distributed development teams. "This provides full visibility into what's going on, what invest-

ments people are making globally, without burdening people," he noted. "Teams are getting more accurate visibility into [how a] project works."

Eclipse, NetBeans and Visual

Studio are among the IDEs into which 6th Sense can be plugged. The company ([www.6sa.com](http://www.6sa.com)) also offers a plug-in development kit if needed to use one's preferred IDEs with the system. ■

## Trying to be agile when your Java code is fragile?

Feeling the pressure to release software faster? Are you bringing new features to market as quickly as your business demands?

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# Mashup Platform Handles Unstructured Data

BY JEFF FEINMAN

Enterprises that want to enter the world of composite applications are finding that vendors have begun to offer tools built for mashing up data as well as services.

On June 11, Denodo Technologies was expected to announce Denodo 4.0, the latest version of its data mashup platform. The new offering introduces a single platform that can deal with structured

and unstructured data. Prior to this, unstructured data was cataloged and indexed in content management systems, which added metadata around a document, or required searching via keywords, according to Suresh

Chandrasekaran, Denodo's vice president of marketing.

Denodo 4.0 comes with an automatic Web wrapper maintenance server, which runs a series of tests against Web extractions to identify changes in navigation

sequence and data formats. If there are any changes to the sources, there is an automatic regeneration capability to correct the navigation sequence or Web extraction algorithm.

Founded in 1999, the Palo Alto, Calif.-based company has focused on structuring information extracted from the Web, Chandrasekaran said. It is now one of the first companies to position itself as a provider of enterprise-class data mashups, which bring together data from disparate sources into one view.

Nowadays, Chandrasekaran explained, a single view means a structure-to-structure integration of data and an index of useful data, such as prices of competing solutions on the market.

"It's something that's coming into the limelight now, this whole idea of data mashups," Chandrasekaran said. "Enterprise data mashups are happening in more serious ways, but the term and the way we're doing it is really coming to the forefront." ■

## Apache Sees The Light With Axis2/C

BY ALEX HANDY

The Apache Software Foundation has released version 1.0 of the Apache Axis2/C core engine—for Web services and SOAP applications written in C or C++. The software is designed for embedding in existing C/C++ applications, to allow them to consume and interact with Web-based services and information.

Apache Axis2/C is integrated with the Apache Web server software, allowing developers to build SOA applications specifically for the open source server. The Apache Foundation claims that Axis2/C is compatible with SOAP and Web services offerings from IBM, Microsoft, Oracle, SAP and Sun.

"Several popular open source projects—such as the PHP dynamic Web language and the Firefox browser—have had Apache Axis2/C embedded into them, to connect more effectively using XML and SOAP," added Samisa Abeysinghe, a member of the Apache Web services project management committee.

Apache Axis2/C 1.0 is open source, and available for free download from Apache. ■

## Advanced Digital Dashboards require Advanced Data Visualization



# Dundas

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# Intel Updates C++ and Fortran Compilers

## Libraries now included with compiler purchase

BY ALEX HANDY

Intel has decided that it's time to refresh the packaging of its compilers. The company released version 10 of its C++ and Fortran compilers in early June, and for the first time it has decided to bundle some of its libraries with the compilers.

In another first for the company, all of the compilers in the lineup are 64-bit-capable, ahead of the release of Mac OS X 10.5, and as a bonus, Intel's Fortran compiler now includes a free copy of Microsoft's Visual Studio 2005.

The bundled libraries include support for a variety of modern development concerns, such as building video codecs and dealing with multi-threaded applications. James Reinders, director of marketing for Intel software developer products division, said that the compiler team at Intel tried to insert as many optimizations as possible into the code to save developers time and energy.

Those optimizations ended up being a boon for the Intel

developers as well. Reinders claimed that, in their efforts to bring vectorization and loop parallelization capabilities into the compiler, the team inadvertently made the product faster, simpler and more stable.

"We came up with this breakthrough optimizer design. You want the compiler to be able to automatically take advantage of [multimedia instruction sets such as] SSE3 or the forthcoming SSE4, or MMX. That's all built into our compiler, with vectorization. You can automatically create a program that runs off and takes advantage of multicore," said Reinders of the compiler's new abilities.

"Anything the compiler can do [to optimize a program] is very useful," Reinders added. We thought this would solve some problems, but it worked a little better than we expected. It's given us a good performance boost; it ended up simplifying our design in a way. It's faster and more reliable. Our compiler is able to examine a program and not only find ways to exploit SSE3 and



Intel came up with a 'breakthrough optimizer design,' claims Reinders.

SSE4 really well, but it's able to create additional threads for the program, and able to do them together and optimize it correctly. It not only speeds up C++ and Fortran, but it made our libraries faster as well."

For Fortran users, Intel has begun to implement the first layer of Fortran 2003 specifications into its compiler. While Reinders said that the

company has yet to implement all of the changes from Fortran 2003, it is beginning down the path to full compatibility with this release.

Now included with each compiler are a selection of Intel's libraries. These include the company's performance libraries, its math kernel libraries and some of its integrated performance primitives. Reinders said that all of these libraries and compilers are available for Linux, Mac OS X and Windows. Intel has added support for Windows Vista and Fedora Core 6 in the compiler refresh.

Additionally, Intel is offering its first student-focused compiler bundle with the version 10 release. Although the software costs US\$599 for the C++ compiler and libraries, and \$699 for the Windows and Macintosh versions of its Fortran compilers, the company is offering a student package through its resellers, where \$129 will get students a copy of either compiler, the included libraries and a selection of Intel's analysis tools. ■

# Custom SOA Governance

## Focus of New Layer 7 SDK

BY DAVID WORTHINGTON

Layer 7 Technologies has extended its Solaris-based SOA appliance and software gateway with the SecureSpan Custom Policy Assertion SDK, which permits customers and partners to create custom extensions for SOA governance and systems integration.

The SDK, released in late May, is Java-based and can dynamically load code modules into running systems. Customers' policies and its pre-built assertions are managed through the SecureSpan administration console.

For security purposes, customer-derived code runs in a sandbox. User code is isolated, and a crash cannot affect regular operation, said Scott Morrison, Layer 7's vice president of engineering and chief architect.

"We feel that this [SDK] will allow you to close the gaps in the governance story. It gives a true robust platform for managing SOA-based transactions in an enterprise," said Morrison.

Morrison claimed that it makes "tremendous sense" for Layer 7 to choose Solaris as its platform for embedded network devices, citing the Sun Microsystems operating system's balance between performance and "absolute security." He noted, "We take the base OS and go through to ensure that it is locked down, to the point where only the absolute minimum services that need to operate the platform are running." The company announced its partnership with Sun Microsystems during this year's JavaOne Conference.

"Governing service interactions is essential for effective security, reliability and availability in SOA," explained Ronald Schmelzer, senior analyst at ZapThink. "End users require tools and technologies...to better tailor their governance policies to reflect changing business priorities and SOA growth." ■

# A Framework of Its Own

## Eclipse SOA proposal would smooth interoperability, pave way for implementation in embedded systems

BY ALEX HANDY

The Eclipse Foundation is moving up the SOA stack, with a proposal that came up in May that could soon become the group's first foray into the runtime aspects of SOA implementation. Dubbed the SOA Runtime Framework, the project is being tailored to bring more interoperability to the SOA world.

In the proposal document submitted to the Eclipse Foundation, the authors, largely from German SOA service provider Sopera, repeatedly point out that existing SOA software tends to work best within its vendor's ecosystem; the difficulty comes when trying to integrate components from multiple vendors. From the proposal: "SOA platforms consist of a set of internal tech-

nical services (e.g., registry, messaging and security). Today, those technical services are strongly coupled within one platform. A loose coupling of those services would allow a best-of-breed approach and would give the user the option

to leverage existing software assets." The proposal cited as an example the difficulty of writing BPEL code in a multi-vendor environment.

The SOA Runtime Framework has seven goals, most of which attempt to address

interoperability. Additionally, the framework will describe plug-in functionality that can be used to extend the capabilities of the runtime with third-party applications and tools. Finally, the project will be built using OSGi specifications, with the intent of later expanding the scope of the SOA Runtime Framework to embedded systems.

The full proposal can be viewed on the Eclipse Foundation's Web site at [www.eclipse.org/proposals/soa](http://www.eclipse.org/proposals/soa). ■

## NEW PROPOSAL FOR SOA IMPLEMENTATION

**The SOA Runtime Framework hopes to meet the seven goals laid out in its proposal document. These goals are as follows:**

- Create a framework/API — an abstraction layer for technical services of a service-oriented architecture.
- Create a set of exemplary implementations (plug-ins) of these technical services.
- The framework/API will be based on OSGi specifications, in order to enable future embedded systems development.
- Support SOA integration standards.
- Create an example application that demonstrates how to use the extensible framework.
- Enable developers on the vendor side to implement plug-ins for a SOA runtime environment.
- Give users more choice to select third-party components and to configure the SOA environment.

Source: [www.eclipse.org/proposals/soa](http://www.eclipse.org/proposals/soa)



# Silverlight Runtime Takes CLR Cross-Platform

BY DAVID WORTHINGTON

Microsoft's Common Language Runtime (CLR) is now cross-platform.

Version 1.1 of the recently announced Silverlight runtime contains a streamlined CLR at its

core, bringing .NET to Mac OS X.

Silverlight is the new moniker for WPF/E, a subset of .NET's Windows Presentation Foundation component. Microsoft has not committed to a release date for version 1.1, which will plug

into the Internet Explorer, Mozilla and Safari browsers on Mac OS X, allowing .NET applications to run on Apple's BSD-based operating system.

The Silverlight iteration, dubbed Core CLR, has most of

the genetic makeup of Microsoft's CLR, but has been cropped to run in Web browsers. "Silverlight is a subset of the entire .NET 3.0 Framework, built out of CLR, with a set of extensions target-

ing rich Internet application scenarios," Tom Robbins, director of .NET platform product management, explained.

"The cross-platform CLR in Silverlight is certainly important, but there is a caveat to keep in mind: Silverlight is for browser-based apps. As of now, there's no way to build a desktop application via Silverlight like you can with Adobe's Apollo," said Greg DeMichillie, an analyst with the market research firm Directions on Microsoft.

"Nevertheless, being able to build [rich Internet applications] in a language like C#, instead of ActionScript, is a big deal," stated DeMichillie. He added that the structure of C# helps developers produce more reliable and manageable code than ActionScript—after a project reaches a certain point in size and complexity. ■

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## Infragistics Puts AJAX Components In Suite for JSF

BY DAVID WORTHINGTON

Infragistics has released NetAdvantage for JavaServer Faces 2007 Volume 1, which includes several components for creating commercial grade AJAX-enabled user interfaces for Java EE applications. The software also has a new charting component as well as hierarchical data grid functionality.

NetAdvantage includes UI controls that enable calendar, hierarchical grid, input, list bar, menu, tab and tree functions. Infragistics claims Java EE applications built with its AJAX-enabled components are designed to handle large data transfers without large postbacks.

The new WebChart component renders both 2D and 3D charts. WebGrid now has options for exporting grid data into CSV files and a function to select data for export to Microsoft Excel. A grid navigation control is also included.

Jonathan Cohen, vice president of marketing and product management at Infragistics, said that while data grids have always been the emphasis for its UI components, the financial market was driving the company to release more visualization and grid components. ■



# IdentityMine Commercializes WPF Controls

BY DAVID WORTHINGTON

IdentityMine has spent the past four years toiling away, creating Windows Presentation Foundation applications for its clients, and in the process, developing its own set of controls for the user interface. They worked out so well that the company has started selling them.

"We found ourselves using at least one of these controls in every application that we developed for customers, and we decided not to sit on them," said Kurt Brockett, IdentityMine's director of product management. The tools "should be included in the toolkit of anyone that plans on developing for WPF," he added.

The controls in IdentityMine's Blendables control pack run the gamut from layout, visualization and data binding to application behavior triggers. An operating

system "checker" permits applications to selectively deploy native customizations.

According to Brockett, Blendables' controls work within Microsoft's Expression Blend

UI design tool and Visual Studio 2005 and Orcas prerelease versions.

Silverlight is the next stop on the Blendables road map. IdentityMine is building the controls

and tools that make sense for Silverlight, and will develop applications for its customers with those tools before making them generally available, said Brockett, who predicted that

customer demand for Silverlight would equal if not surpass that for WPF.

A general release of Blendables is scheduled for this summer; a Community Technology Preview is ready for download at the IdentityMine Web site. There is no ship date set for Silverlight Controls. ■

## FiveRuns Runs Ruby-on-Rails

BY ALEX HANDY

Ruby-on-Rails (RoR) is getting the enterprise treatment from FiveRuns. The company has created tools that can give RoR developers a much clearer picture of what's going on inside their applications. The company's enterprise management platform was updated in May to offer a new RoR-specific monitoring suite that can peer into the soul of a running Ruby application.

FiveRuns CEO Steven Smith explained that the uptake of Ruby in the enterprise prompted his company to search for problems in the space that needed solutions. As such, FiveRuns found itself building this monitoring suite to give developers a much-needed production-time tool.

"The application management part of it allows you to see a profile of how your application is behaving," said Smith. "You can pick an action, and diagnose how much time is being spent invoking the database and rendering the page views the user would see."

Unlike traditional monitoring software, FiveRuns' solution is offered as a service, and checks in on a monitored site 12 times each hour. The service costs between US\$20 and \$40 per server per month. ■

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# WSO2 Takes the ESB Open Source

## New SOA middleware builds out Apache-based Web Services Framework

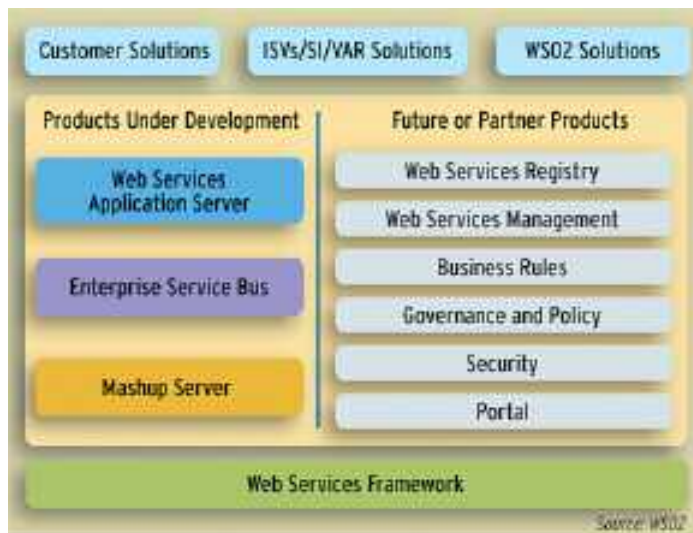
BY DAVID WORTHINGTON

Last year WSO2 revealed its ambition to deliver a fully open source middleware platform for SOA. The startup has come one step closer to realizing that goal with the June 11 release of its enterprise service bus. The ESB is the latest part of WSO2's Apache-derived Web Services Framework (WSF).

The WSO2 ESB is a service and message mediation platform that provides the ability to configure, route, log and manage Web services without writing code, said Sanjiva Weerawarana, WSO2's chairman and CEO. It is based on Apache Synapse and is designed to run standalone or with WSO2's Web Service Application Server (WSAS).

"Our competitors [offered old Java Message Service that's been] rebranded ESB now. They addressed the Internet integration problem of the 1990s and have homogeneous J2EE platforms. Ours is lightweight and high-performance in comparison," Weerawarana remarked.

Weerawarana noted that



The WSO2 ESB is part of a wider Web Services Framework.

the ESB engine does not read messages into memory unless it has to, which he claimed creates no more than 1 millisecond of delay. The ESB extends WSAS' mediation capability, providing proxy services, non-blocking HTTP/S transport, an integrated registry, load balancing and throttling support, and can be extended via custom Spring mediators or BSF scripting languages. Configuration modules allow the use of

Java, JavaScript, Ruby, XPath (XML Path Language) and XSLT (Extensible Stylesheet Language Transformations). The ESB architecture is built around an XML model and has an AJAX interface for administration, management and monitoring tasks.

The WSF vision began to materialize after WSO2 set out to build an Apache Axis2-based framework to remediate the perceived weaknesses of pro-

proprietary software. Weerawarana cited an emphasis on code portability over interoperability, narrow platform support, limited end-user involvement, insufficient governance, and the lack of Web-scalable security architecture. The platform supports a range of service standards, including Atom Publishing Protocol and Atom Syndication Format, JSON (JavaScript Object Notation), REST (Representational State Transfer), and of course, WS-\*. Services are developed in both C and Java, with additional wrappers for JavaScript, Perl and PHP.

"The primary objective was developer ease of use," said Weerawarana. "It scales from simple [REST] to full enterprise-y [WS-\*]."

### MANEUVERING MIDDLEWARE

The next major WSF component to ship will be WSAS 2.0. There is also a mashup server on tap and a slew of planned future or partner products including a Web services registry; an identity solution that implements Windows CardSpace technology; a Web ser-

vices management facility; modules that add business rules, governance and policy; security functions and a portal.

WSAS 2.0 is slated to ship July 23. It is a Java runtime for hosting services, with support for WS-\*, that runs on BEA's WebLogic, IBM's WebSphere and Red Hat's JBoss. It also runs on GlassFish, Jetty and Tomcat, as well as other platforms, said Weerawarana.

The WSAS refresh is expected to include Eclipse integration as well as access throttling, clustering for high availability, data services, improved developer and management tools and additional security, including XKMS (XML Key Management Specification) support. Weerawarana elaborated that the data services will be able to take relational data and make it into a Web service without any Java code.

The WSF source code is available at the WSO2.org Oxygentank Web site, with an internal mailing list, forums and Wiki, as well as the usual knowledgebase, podcasts, presentations and tutorials. ■

# Salesforce's Apex Connects Apps to Services

BY DAVID WORTHINGTON

Salesforce.com has taken SOA on demand, unveiling the Salesforce SOA platform on May 21 at the Salesforce Developer Conference in Santa Clara. The platform is based on an extension of the company's Apex programming language that builds applications that integrate with Web services.

Ariel Kelman, Salesforce's senior director of platforms marketing, pointed to the current definition of SOA as a strategy for building applications that tie together distributed Web services. Salesforce SOA provides the ability to mash up the company's on-demand services with enterprise workflow and business processes.

"We are letting people automate business processes across multiple systems, which I think is the essence of a SOA strategy," Kelman remarked. He said that Salesforce's customers are driving a shift in the company's

strategy, from a focus on CRM to providing an application development platform and CRM services.

The Salesforce SOA platform consists of the Apex programming language, integrations with Salesforce applications and data, the Salesforce API for programmatic access, a set of models and objects to manage data, a user interface model and a workflow engine. Applications are run on Salesforce's multi-tenant service.

Apex is a Java-like language that was created to build business logic and processes into Salesforce applications. "[Apex] now has logic to consume external Web services both inside the enterprise and outside of the firewall," said Kelman. Apex applications are exposed as Web services, accessible via SOAP and XML; they can interact with internally deployed applications such as Oracle Financials, or outside ones such as FedEx's shipping and tracking tools.



Salesforce SOA can consume Web services outside of the firewall.

Apex now has an event model and transaction control, and uses a packaging model similar to Java. The event model provides developers with granular control over Salesforce deployments, and the ability to reprogram and modify existing components.

Transaction control is possible because Apex is bound to Salesforce data through the API; this permits developers to add transactional features to their applications. The system checks for conflicts and has data commits and rollbacks.

Apex application packages can be invoked from one another or from within triggers. Any method defined in a package may be exposed as a Web service then invoked via the Salesforce Web services API or AJAX toolkit.

Apex will remain backward-compatible with Salesforce services. Apex applications can be redistributed through the AppExchange Directory alongside custom objects and other Salesforce platform features.

Web services functions are also available within Apex code. Salesforce says that this capability enables new types of functionality and new classes of

applications that amplify the advantages of an on-demand development platform by knitting in Web services.

Salesforce follows an adaptive development process to decide what its partners can build in, what should be a new category in the AppExchange application sharing service, and what is strategic enough to require it to be built by Salesforce itself.

"The more sophistication we can provide and the more granular the control, the more successful customers' IT departments can be and move onto our on-demand platform," Kelman said.

"Many companies have invested considerable time and expense chasing the promise of software-based SOA," said David Linthicum, CEO of the Linthicum Group. "Salesforce SOA will marry SaaS and SOA to make possible new kinds of business processes and applications. Developers, IT departments and CIOs will be able to harness business logic spanning multiple applications to mash up and create thousands of new applications." ■





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# Ecma's Giving JavaScript Object-Oriented Features

◀ continued from page 1

the next few months, the language will be evolving into a more object-oriented form, if its creator gets his way.

Brendan Eich wasn't always able to care for his progeny back in his days at Netscape, where he created JavaScript in 1995. With the browser wars raging, and Netscape crumbling, Eich's attentions were turned elsewhere. Today, Eich is the CTO of the Mozilla Foundation, and he admits that the language has been down a long, bumpy road. But he hopes that the work currently going on in Ecma to build JavaScript 2.0 will help to smooth out some of the wrinkles in the JavaScript ecosystem.

### THEN CAME FIREFOX

According to Eich, the days around the millennium were marked by a distinct lack of JavaScript evolution. During that time, AOL was digesting Netscape, its newest acquisition, and the Mozilla Foundation was just beginning to build its open source browser. The landscape of the Web was dominated by startup e-stores.

"Then Firefox [happened]," Eich said, "and interest in JavaScript [grew] around the same time. Suddenly you could drag Google maps around. Mozilla started having success with Firefox by catering to JavaScript gurus. This led to fermentation in the Web 2.0 space, with JavaScript becoming more important. We started working on [the] ECMAScript standard again."

ECMAScript is the Ecma standard version of JavaScript, and it has been slowly moving toward version 2.0 over the past couple of years. For all intents and purposes, ECMAScript and JavaScript are soon to become one and the same, as Eich hopes that version 2.0 will be the standard upon which all other implementations are based. Eich noted that Microsoft and Adobe Systems have both produced implementations of this as-yet unfinished language, Microsoft's JScript .NET and Adobe's Flash ActionScript. He said he hopes that ECMAScript 2.0 will spur browser makers to adhere to that standard, rather than create their own specific versions of the language.

Eich said that version 2.0 will represent an evolution of existing capabilities, rather than a revolution. He explained that many of the things planned for JavaScript 2.0 will bring more of a traditional programming feel to the language and address deficiencies in the language.

"It's difficult to share the same namespace in the browser. You can't make private variables easily," said Eich, describing JavaScript's current shortcomings. "If you use the functional programming power of

JavaScript, you can capture the functions and simulate private variables, but it's a little heavyweight. People are used to classical object-oriented methods in Java. There is a compelling view for adding classes to Java. You can make objects that have private members [in JavaScript 2.0]; people can't mess with them. That's part of what we're doing for JavaScript 2."

Eich went on to detail the new open process through which the ECMAScript 2.0 specification is being led. "We're setting up a site called ES-lang.org for public hosting of code and bug tracking to expose the reference implementation. We're going to open-source it and get a community around it. We'll open the Ecma specification and bug fixes, and help people make sure their own implementations are correct."

The ES-lang.org site went live in mid-May, and offers developers the chance to play with ECMAScript 2.0. Eich expects more content in June, including bug tracking and links to reference implementations. ■

## Compuware Aligns Management Solutions Into Suite

BY JEFF FEINMAN

Compuware was expected to release on June 15 Compuware Optimal, a new packaging of its management solutions integrated through Optimal Delivery Manager.

Optimal Delivery Manager is an application delivery management platform that provides a complete set of management dashboards, giving IT managers control of their projects with metrics that are automatically driven from the tool set.

The Compuware Optimal suite consists of application delivery management, business requirements management, project management, and quality and performance assurance tools, including OptimalJ and Optimal Trace.

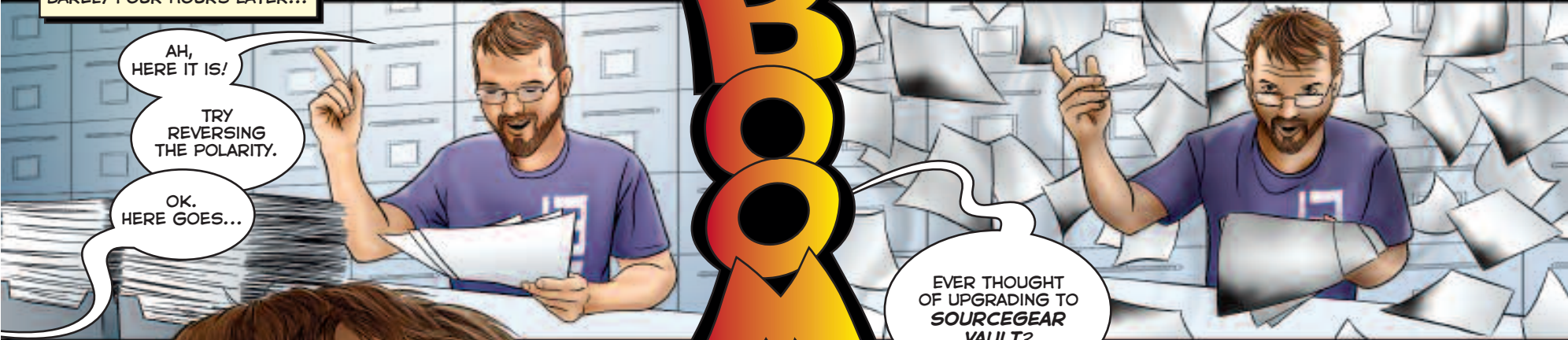
Though the company calls its development and QA tool offerings "application delivery management" solutions, Compuware Optimal is specifically meant for application developers.

Mike Burba, marketing director for Compuware's application management department, said Compuware is making business requirements the foundation of the application life cycle. "From our perspective, we feel like business requirements have been a problem for many, many years. It's been the Achilles' heel of IT, in that we don't do a good job of collaborating with the business, to understand what they actually need." ■





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# HP, IBM Fight for SOA Mindshare

◀ continued from page 1  
approach," he said.

"HP has a stronger position today [than IBM] in SOA service governance," said Larry Fulton, a senior analyst with Forrester Research. "However, IBM has a very broad vision for governance and generally for metadata management, and is advancing its offerings in a very methodical way, so HP will have to work very hard, indeed" to keep its lead.

HP Change Impact Testing now automatically locates test cases for services for tests that need to be run to prevent regressions. It also has new facilities for quality teams to manage changes, Tzur said.

A new view has been added to HP Business Process Testing allowing business analysts to test business processes in their environment, to bridge the gap between business analysts and quality engineers. HP Business Availability Center Software monitors and manages Web services in production. It will run diagnostics and map appli-

cations to assist IT teams to resolve issues.

HP Services and the company's SOA Center for Excellence service will provide customers with road maps and expertise into, and beyond, the pilot stage, helping customers to produce defined road maps for SOA adoption. HP SOA Center for Excellence counsels companies that are ready to move beyond the pilot stage of SOA and embark on enterprisewide deployments.

Fulton commented, "In HP's favor is the inevitability of enterprises having service-oriented capabilities from multiple vendors, which gives their platform-neutral stance added credibility with those clients who are not already committed to IBM products top-to-bottom.

## IBM'S IMPACT

At IBM's Impact 2007 conference in Orlando, Fla., Big Blue keyed in on its expanded SOA training, education and professional services, and detailed several product updates

and integrations.

IBM is releasing a "serious game" called Innov8 that induces IT teams and business leaders to collaborate more effectively on BPM by showing players how SOA affects different parts of the organization. It also launched a portal called IBM TV: Impact Channel, offering both introductory and advanced technical content for developers to sharpen their skills—and minds—about SOA.

Taking instruction to the next degree, IBM is expanding its SOA certification and education programs. IBM is making new self-paced and instructor-led classes available online and in the classroom through a partnership with college and universities worldwide. IBM's SOA Strategy professional services will hold infrastructure and strategy workshops.

For those who are not do-it-yourselfers, IBM is launching six SOA professional services: SOA diagnostic, strategy, implementation planning, business process management, design develop-

ment and integration, and management. New industry-specific SOA road maps identify critical business processes within particular industries.

Although HP may lead on the product side, Forrester's Fulton said, "comparatively, I'd have to say IBM has a commanding lead in the area of services. It has a huge, well-known services organization. It has formal, field-tested SOA design and organizational change methodologies, in their third and fourth iterations. It has invested heavily in getting out the word on its SOA capabilities over the last two or more years."

It's not all services, however, at IBM. The company has updated its WebSphere Service Registry and Repository (WSRR), and has introduced Rational Portfolio manager, while adding new integrations among its products as well as BPM enhancements.

DataPower SOA appliances and FileNet Content Management and BPM have been inte-

grated into IBM's SOA product portfolio. WebSphere DataPower Integration Appliance X150 supports direct database connectivity with IBM's DB2 data server, to extend the hardware appliance's service bus capabilities.

IBM has also introduced Rational Asset Manager, which is collaborative asset management software that is a registry of design, development and deployment-related assets. Organizations can use it to identify, manage and govern SOA services from design time to their eventual consumption.

IBM is also providing industry-specific BPM templates and has expanded its business activity monitoring software to track activities from more sources. BPM dashboards monitor the roles of employees associated with the activities.

IBM DB2 Dynamic Warehouse and WSRR have likewise been given BPM-ish updates. DB2 Dynamic Warehouse now integrates IBM's Information on Demand infrastructure services for data management, so that customers draw information from it to help optimize processes. ■

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# Mainsoft Bridges Microsoft-Java Gap

## Cross-compiling tool allows developers to code in .NET and run on Java

BY ALEX HANDY

Like the Capulets and Montagues, Java and .NET have been feuding for years. To the detriment of star-crossed developers worldwide, the two just can't seem to get along without a third party coming to the table. One such third party is Mainsoft, which on June 6 was to release Mainsoft for Java EE 2.0, a cross-platform development suite that allows programmers to build applications in Visual Studio 2005 using C# or ASP.NET and then deploy those applications to run on a Java application server, such as IBM's WebSphere.

Yaacov Cohen, president and CEO of Mainsoft, explained that building his company's cross-platform development suite took two years and lots of hard work. The initial release of the product in 2005 was named Visual MainWin for J2EE, and it supported the first versions of the .NET Framework. New to version 2.0 of Mainsoft's flag-

ship product is support for .NET 2.0, ASP.NET 2.0 and Visual Studio 2005.

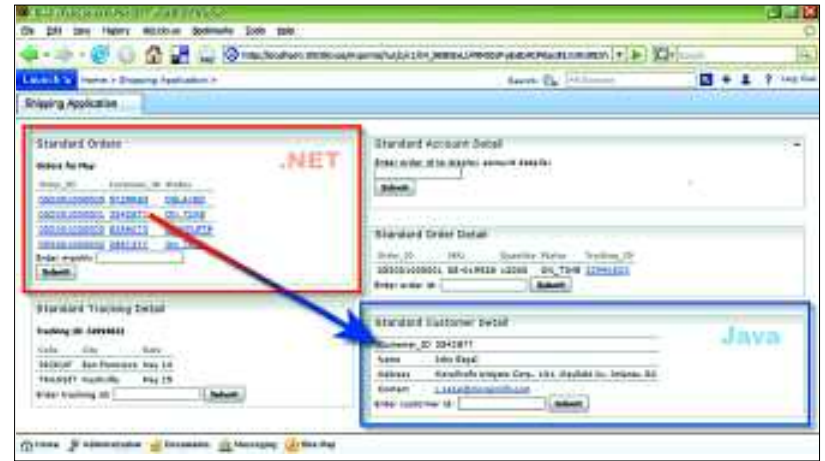
Cohen said that many of his company's customers are also working with IBM software.

"They are struggling with .NET and Java interoperability," he said. "When you're a large company that's not entirely Java or .NET, you end up...with conflicting skills and complex back-end systems. You need to manage a data center with a heterogeneous environment. You need experts in .NET, and in Java, and experts in interoperability. We're really trying to simplify the .NET interoperability issues by respecting the diversity of the development culture in the enterprise. We believe diversity is beneficial."

To that end, Cohen argued that repurposing .NET developers to learn Java won't work. Neither will bringing Java developers over to the Microsoft world, he added. As such, Main-

soft for Java EE 2.0 allows the .NET developers to stay in their favorite environment, while allowing the server administrators to continue building on top of existing Java application server infrastructure.

"We don't change the code," said Cohen. "We are cross-compiling the .NET source code into Java byte-code. Our customers are large public sector organizations, which are running the business on a Java EE infrastructure because of scalability and security. But they have a lot of developers that are .NET developers, [while] they are struggling to hire the more expensive Java developers. They can hire a [.NET] developer straight out of college, and then use these .NET developers to target a Java EE infrastructure. There is flexibility gained by



Here's something you don't see every day: .NET code running on IBM's WebSphere.

decoupling their development decisions from the production decisions."

Cohen noted that his company will offer three versions of Mainsoft for Java EE 2.0.

The first of these is a free feature-complete developer edition. This free edition, however, can create applications that can be deployed only to single-CPU servers that run Apache Tomcat. Additionally,

Mainsoft will offer an enterprise edition that costs US\$5,000 per developer, and \$5,000 per CPU. That edition is targeted at general applications that will run on IBM's WebSphere application server. Finally, Mainsoft will offer a portal-focused edition of the product that is designed to allow developers to build portlets. This version also costs \$5,000 per developer, but runs \$15,000 per server. ■



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# Development Is Lean,

◀ continued from page 1

Beck did not answer yes or no, but transformed the question instead. "If an XP programmer joined a team that had been practicing lean, would [he] feel right at home? I expect the answer is yes." By contrast, if the XP programmer joined a team doing waterfall development, he would likely feel he had landed in "a different country, on a different planet," said Beck, referring to the traditional approach to building software, where each stage completes, before the next is begun.

Lean software development is derived from the lean manufacturing approach, which Toyota originated in Japan as early as the 1940s, said Mary Poppendieck, co-author with Tom Poppendieck of "Implementing Lean Software Development," among other

books. She said that the process of building cars, for example, isn't exactly the same as that of developing software. But the principles of lean manufacturing, known earlier as just-in-time manufacturing, apply to software development too.

For instance, a key idea in lean manufacturing is "eliminate waste." Applied to software development, waste is defined as "anything that is not in direct support of the customer, such as writing requirements that have to be changed later," said Poppendieck. Another lean manufacturing principle is "stop the line," she said. In software that translates to "fix bugs as soon as you find them."

Asked to characterize lean software development's relationship to agile methodologies, she said: "Lean is direct support of agile."

## SEVEN PRINCIPLES OF GETTING LEAN

### 1. ELIMINATE WASTE

The three biggest wastes in software development are:

- Extra features.
- Churn: If you have requirements churn, you are specifying too early. If you have test and fix cycles, you are testing too late.
- Crossing boundaries: Organizational boundaries typically increase cost by more than 25 percent, slowing down response time and interfering with communication.

### 2. FOCUS ON LEARNING

- Use the scientific method: Teach teams to establish hypotheses, conduct many rapid experiments, create concise documentation and implement the best alternative.
- Standards exist to be challenged and improved: Embody the current, best-known practice in standards, while actively encouraging everyone to challenge and change the standards.
- Predictable performance is driven by feedback: A predictable organization develops the capacity to rapidly respond to the future as it unfolds.

### 3. BUILD QUALITY IN

- Mistake-proof code with test-driven development: Write executable specifications instead of requirements.
- Stop building legacy code; it lacks automated unit and acceptance tests.
- Use continuous integration and nested synchronization.

### 4. DEFER COMMITMENT

- Abolish the belief that it is a good idea to start development with a complete specification.
- Break dependencies: System architecture should support the addition of any feature at any time.

- Maintain options: Think of code as an experiment, and make it change-tolerant.
- Schedule irreversible decisions at the last responsible moment: Learn as much as possible before making those decisions.

### 5. DELIVER FAST

- Rapid delivery, high quality and low cost are fully compatible. Companies that compete on the basis of speed have a big cost advantage, deliver superior quality, and are more attuned to their customers' needs.
- Queuing theory applies to development, not just servers: Drive down cycle time with small batches and fewer things-in-process.
- Limit work to capacity: Establish a reliable, repeatable velocity with iterative development. Aggressively limit the size of lists and queues to your capacity to deliver.

### 6. RESPECT PEOPLE

- Engaged, thinking people provide the most sustainable competitive advantage.
- Teams thrive on pride, commitment, trust and applause.
- Effective teams have effective leaders who bring out the best in the team.
- Respect partners: Allegiance to the joint venture must never create a conflict of interest.

### 7. OPTIMIZE THE WHOLE

- Brilliant products emerge from a unique combination of opportunity and technology.
- Measure Up: Measure process capability with cycle time. Measure team performance with delivered business value. Measure customer satisfaction with a net promoter score.

Source: Adapted from [www.poppendieck.com](http://www.poppendieck.com)



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# But Is It Agile?

Crystal creator Alistair Cockburn admitted that he knew little about lean manufacturing when he and others authored the Agile Manifesto in February 2001, coining the term "agile."

"But since then I have been doing a lot of reading about lean, and I can't see that we in the agile community have added much of anything to what Toyota was already doing," he said. "It is sobering to realize they have been doing for decades stuff we think we invented."

Asked whether he considers lean software development an agile methodology, Cockburn said: "Yes, it fits in the agile suite absolutely."

The Agile Manifesto was the result of a February 2001 meeting that brought together Beck, Cockburn and other backers of iterative development approaches, known at the time as lightweight methodologies. The document ([agilemanifesto.org/history.html](http://agilemanifesto.org/history.html)) articulates the values of agile development, including "People and interactions over process and tools," and "Working software over documentation."

Ward Cunningham, who works for the Eclipse Foundation, was a key contributor to the Agile Manifesto meeting. But unlike some of his agile colleagues, he fundamentally disagrees that ideas from manufacturing can be successfully applied to software development.

"Software development is a knowledge activity, not a material processing activity," he said. "Manufacturing has been improved by insights associated with lean [thinking], but software has

never been improved by modeling its processes on manufacturing."

## THE LEAN ZEITGEIST

Agile or not, lean software development is attracting the attention of business executives (such as the one listening to Beck's talk) because it is based on a concept the business world is familiar with, said Beck. "Lean is part of the zeitgeist. It gets talked about in business schools, and even people who aren't in manufacturing have heard of it." By contrast, the message behind agile development approaches has been marketed mostly to IT executives, he said.

Business executives are comfortable with the lean software development because it has a set of thinking tools for looking at the big picture and optimizing it, said Beck. "None of the agile methodologies emphasize that." The lean concept of "continuous improvement," for example, is also found in XP ideas, such as "Don't try to do things perfectly if you don't know how" and "Make changes in baby steps," he said. "The thinking is there, but [the idea of continuous improvement] is not expressed directly."

Forrester analyst Carey Schwaber agreed that lean software development and agile methodologies are two complementary schools of thought. "There are quite a lot of people out there using the terms 'agile' and 'lean' interchangeably, but they are not the same thing," she said. She has also seen agile consultants attempt to differentiate themselves by citing expertise in lean. "But often that expertise isn't much to speak of." ■

# ColdFusion 8 Comes In Out of Cold

◀ continued from page 1

support around PDF, integrations with databases, added compatibility with JBoss' application server and a whole slew of code updates that bring this Web environment up to the present day.

As ColdFusion is composed of a number of different parts, each aspect had to be updated to keep in step with the rapid pace of innovation in the software industry, said Buntel. ColdFusion's server-side component is written in Java, and thus runs on a Java application server. This time around, Adobe has updated the software to work with Java SE 5 and Java SE 6, as well as with JBoss' tooling. Additionally, the product now includes debugging features that can be used inside of Adobe's Eclipse-based Flex Builder IDE.

Buntel said that monitoring and debugging ColdFusion applications has been a high priority for his development team. "ColdFusion's reputation is about productivity. We're adding a bunch of features to make developers more productive. We've added a server monitor. It gives you deep insight into what's happen-

ing on the server, such as memory usage [and] database query caching, and it can offer some guidance on how to improve code and fix problems if they arise."

ColdFusion's self-titled markup language has received an overhaul as well. CFML has been tweaked and modernized to be more in line with current Web development needs, said Buntel. "With a 12-year-old product, we want to make sure the language continues to meet the needs of the developers. We're letting the language be used in a more object-oriented way. We're adding data integration services and things like data sync and data push. You can manage data as it moves back and forth."

And it wouldn't be an Adobe product without massive new PDF support built in. ColdFusion 8 applications can output and receive information in PDF form, and can populate forms inside those PDFs with information they've gathered on the fly, said Buntel.

ColdFusion 8 will be in a feature-complete preview through mid-2007, according to Buntel. ■

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# How Many Jobs Have Shifted Offshore?

A reality check...plus advice on keeping yours when all else fails

BY JENNIFER DEJONG

It isn't always said out loud, yet every software developer has gotten the message: If all you do is write code, your job is in danger of moving offshore.

But when it comes to how many programming jobs have actually shifted to India and other countries, where labor costs remain lower than those in the United States, the perception doesn't always match the reality.

The Association of Computing Machinery (ACM) commissioned a task force of computer scientists, social scientists and labor economists from around the world to review existing reports and data pertaining to the globalization and offshoring of software development.

The task force found that definitive numbers are hard to come by, but based on the data reviewed, ACM estimated that the annual job loss attributable to offshoring is approximately 2 percent to 3 percent of the IT workforce. This number is smaller compared with the much higher level of job loss and creation that occurs every year in the United States, according to the 2006 ACM report "Globalization and Offshoring of Software," which published the task force's findings.

Economic and financial forecasting firm Global Insight concurred that analyzing how many software developer jobs have migrated offshore is difficult.

## SOA Architects in Demand

◀ continued from page 3

a government agency operates is critical expertise for technology professionals involved in SOA projects, said Vitalie Temnenko, an architect for the Workplace Safety and Insurance Board (WSIB), a Canadian government agency.

"Capturing the business needs and developing the short- and long-term enterprise road map for SOA can be a challenge," WSIB is adopting SOA gradually, he said. "New systems are developed as services, and interfaces for those new systems are also service-based." Temnenko's background as a software developer, systems analyst and project manager over the course of his career has helped prepare him for this role. "The only way to gain the skills is through years of experience."

The SOA architect is also responsible for defining a SOA governance and service reuse strategy, said IBM Rational director Dave Locke. "You have to come up with naming conventions, and

### WHAT'S A CONFIGURATION DEVELOPER?

Step aside, SOA architects. The next big thing to hit the online help wanted ads is "configuration developer."

Typing in that title returns only a couple of hits on IT job search site Dice. But Tracy Ragan, chief operating officer for build management tool maker OpenMake, said that the position is gaining importance for companies that manage large, globally distributed development efforts.

"Configuration developers take the source code from guys in India, or in Sri Lanka, and figure out how to assemble it." They determine whether the code can compile, or what enhancements it needs to make that happen, she said.

According to online job listings, the configuration developer position is all about streamlining and standardizing build processes. To do the job, a developer has to understand the architecture of applications, and those who land that role typically stumble into it, said Ragan. "You have to have the personality that says, 'Let me see if I can debug this. I will sit here until I get it done.' They are willing to take the time to look at the Ant files, and the make files."

"Do you have to be foolish to take on the configuration developer role?" she wondered. "Or maybe you have to be brave."

—Jennifer deJong

cult. It's next to impossible, said company spokesperson Mike Montgomery. "There are jobs here that left. There are others that were never here, but could have been. And then there are new jobs located there, instead of here," he said.

### MAKE YOURSELF INDISPENSABLE

Whatever the reality, it's a myth that everything is being outsourced, said John Estes, a vice president for IT staffing firm Robert Half Technology. It is also incorrect to assume that developers have no choice but to

move out of the programming role if they want to remain employed by the companies they work for, he said. One alternative is to ask yourself, "What can I do to make myself indispensable as a programmer?"

Step one to accomplishing that goal

is broadening your expertise in multiple skill areas, Estes said. "Our clients want Java skills. They want database skills. Some even want Java *and* .NET skills." During the dot-com era, employers wanted niche-specific expertise, but today is very different, he said. "Nowadays they say, 'OK, this person has five years of Java. What else does he have? Database experience? Enterprise [experience] from C++ days?'"

For developers that do have management aspirations, the ability to interact effectively with line-of-business executives is essential, Estes said. "You don't necessarily need an MBA. But you must be able to [articulate] how what you do contributes to the business."

The ACM report concluded that offshoring will increase, but it was unable to determine by how much, and when.

"Skepticism is warranted regarding claims about the number of jobs to be offshored and the projected growth of software industries in developing countries" the report found. ■

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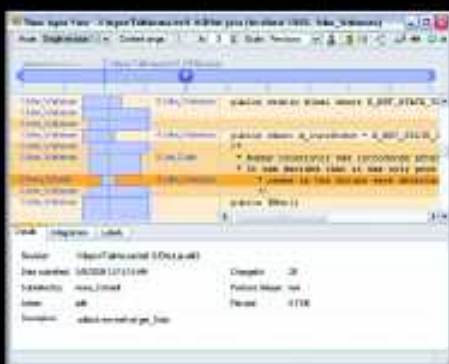
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Time-lapse View is just one of the many productivity tools that come with the Perforce SCM System.



# RapidMind Advances Multicore Support

## Offers platform abstraction to speed adoption

BY P.J. CONNOLLY

For years, processor vendors have improved performance by increasing the clock speed; that well having run dry, they are now cranking up processors by increasing the number of cores in a single package. But programming for multiple cores raises the question of how to allocate a workload across such a hardware platform without tying oneself so closely to the silicon that portability is impossible.

One company that thinks it has an answer is RapidMind, which announced in May the general availability of a new version of its namesake development platform for multicore and stream processors. The update adds support for IBM's Cell BE processor.

RapidMind allows developers to write in standard C++ with existing tools. The software distributes the workload across the various cores in a way that wrings the most performance out of the hardware. This is especially important in high-performance computing applications, such as financial modeling, seismic analysis, and image and signal processing.

Ray DePaul, RapidMind president and CEO, explained that before multicore, software developers didn't have to

do much to take advantage of hardware improvements. "The challenge with multicore is that the software developers and ISVs actually have to do something to take advantage of it. The options today are quite difficult and error-prone."

DePaul noted that the chipmakers are experiencing Moore's Law, but on a new front: "They're doubling cores at the rate they used to double clock speed, and there's this gap in the software ecosystem's ability to take advantage of that. That's the gap we fill."

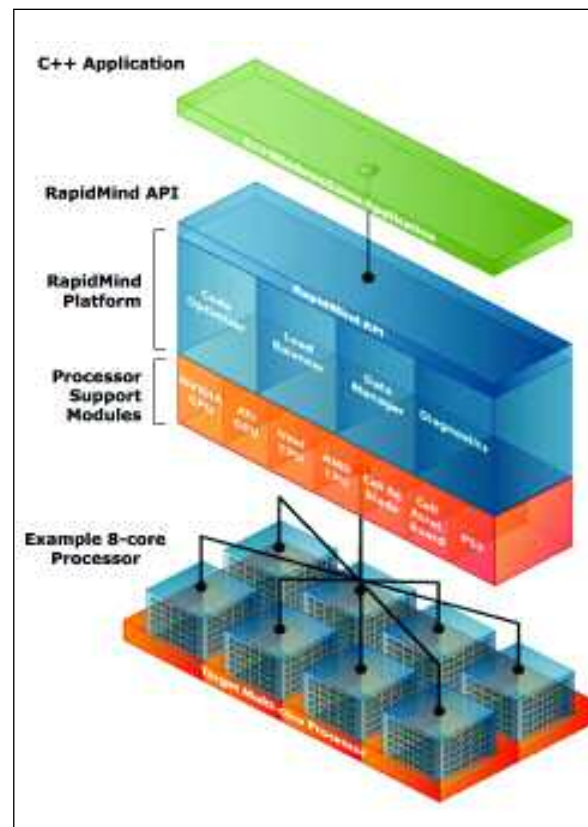
The RapidMind platform incorporates a code optimizer that attempts to reduce overhead by analyzing computations for instructions that don't need to be performed one step after another. A load manager schedules the work from one core to the next, while a data manager sorts out the flow of information and logging diagnostic tools report performance bottlenecks and other mishaps. Processor-specific support modules allow the RapidMind platform to communicate with the underlying hardware, while at the top of the stack top, the RapidMind API supports Linux and Windows applications.

DePaul argued that adding an abstraction layer makes developers'

lives simpler in a multicore world: "If you are fortunate enough to get [multicore applications] working, the next time the hardware revs, you have to go back to the drawing board. Our platform scales arbitrarily, to the number of cores."

Today, the RapidMind platform works with the ATI x1X00 line of graphics cards, as well as NVIDIA's Quadro card and the GeForce 6000, 7000 and 8000 series of cards. It also supports IBM's 9-core Cell BE, in the company's QS20/30 blade and in the Sony PlayStation 3. PlayStation users can run Yellow Dog Linux 5 on their PS3s; users on other platforms will have to be satisfied with Fedora Core 4, Red Hat Enterprise

Linux 4, Ubuntu 6.10, Windows 2000 and later versions of those operating systems. RapidMind expects to announce support for AMD and Intel processors at a later date. ■



The RapidMind platform uses pluggable processor support modules, enabling portability through write-once coding.

# Sybase Is Speaking In (Embedded) Tongues

## Answers Anywhere to recognize natural language

BY P.J. CONNOLLY

Talking to one's car, phone or other mobile device may become easier someday, with help from Sybase iAnywhere.

Although natural language interfaces are nothing new for Sybase, the challenge until now has been shoe-horning the technology into the limited confines of embedded systems. But at the end of May, the company announced that an update to its Answers Anywhere mobile middleware platform would ship later in June, adding natural-language interfaces to the company's tools for embedded devices and telematics.

The new tools are based on a flexible, agent-oriented software architecture that supports embedded systems running QNX or Windows CE, with other platforms under consideration; the Sybase subsidiary claims 22 patents

for the natural language features alone.

Babak Hodjat, Sybase iAnywhere's senior director of engineering, explained that by targeting platforms from Microsoft and QNX first, the new Answers Anywhere tools support a substantial chunk of the telematics market. He noted that Answers Anywhere was a different approach to the problem of teaching machines to understand humans. "It works through creating a model of the application, instead of creating a model of the language or a statistical model of what users may say," he said. "Each node in that model is active; we're calling it an active ontology, [where] they look at input, look at contextual clues and they look at the state of the application. Based on that, over the network, the system resolves the intention of the user and maps it to the back end." ■

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# *Is the Browser Singularly Capable of*

## *For complex applications, client runtimes might still be*

BY ALEX HANDY

Science fiction authors like to talk about a technology singularity. When Rudy Rucker, author of the books “Software” and “Wetware,” described the concept at a recent event in San Francisco, he theorized that humans may some day upload their personalities into computers. But he also pointed out that things like blogging and the almost religious uploading of photos from one’s life is a reasonable substitute for personality digitization.

This analogy extends to the Web itself. Eventually it will undoubtedly be a ubiquitous repository for almost all human knowledge: one platform to rule them all.

But there is a single choke point that humanity must contend with in order for the Web to evolve to its full potential: the browser. At present, many companies are building their futures entirely on the Web, with hosted services and browser-based rich Internet applications. But in the future, there are two possible scenarios. The first is one in which the browser slowly evolves to replace everything, becoming the single doorway into a larger world. The second scenario, which companies like Adobe Systems, Microsoft and Sun Microsystems seem to be anticipating, is a world in which the Web and the browser are

separate entities, and the information out there in the ether can be accessed from your desktop applications—such as with iTunes—or your browser.

Which of these two scenarios is more likely? At the moment, it’s difficult to say.

### **CAN THE BROWSER DO ANYTHING?**

It would certainly seem that the Web browser is on track to replace much of our daily software. With Google offering an entire office productivity suite through the Web, it’s becoming harder to make a case for not building applications there. The speed with which the Web browser has replaced the standalone client, too, has been a shock for Jeffrey Hammond, senior analyst with Forrester.

“I’m surprised at how rapidly these technologies are being adopted by what I would consider to be mainstream firms,” said Hammond. “Typically you see a crossing-the-canyon type of uptake. I’m seeing interest from large insurance companies, and any company that feels like it needs to win with its customers. The adoption curve here is going to be shorter than most people expect.”

That’s a good bet, considering many people didn’t know what the Internet was 10 years ago. If the browser is able to do all the heavy lifting traditionally reserved for standalone applications, it’s a sure bet that the browser crossed that

line quietly and quickly. In a world where Google can rise to become the focal point of the Web and one of the most respected software companies in the world in less than 10 years, there’s no denying that the maturation of the Web has been rapid.

Rich Internet application pioneer Curl recently relaunched itself in the U.S. market with its client runtime solution for Web-based applications that require the type of complex interfaces that were once available only as client/server applications. “I think our customers are asking for the possibility of having rich, complex large-scale applications encompassing their work flows and data flows delivered over the Web,” said Doug McCrae, Curl’s solutions architect. “If that means the presentation layer and the processing is happening on the client, it’s not a thin client. But certainly they’re asking so that they don’t have an installation and the cost of server-administered programs.”

And therein lies the real draw of the Web-based client: total cost of ownership. Web applications are just easier to maintain, said Hammond. Developers don’t have to worry about installation and end-user version control, and server administrators don’t need another box on their network in order to communicate with clients. Add to that the rise of simpler, cheap and even free Web devel-

opment tools, such as Ruby-on-Rails, PHP and JSF, and the idea of building a standalone networked client application begins to look like a lot more work.

These benefits allow Web applications to be built for more robust purposes in a shorter amount of time, said Matt Peloquin, CTO of Construx, a software consulting firm. “I find things like the recent AJAX craze interesting because the techniques popularized by these technologies have been possible for years,” said Peloquin. “It’s just that the technologies made things easy enough to be broadly appealing to developers. For many business applications, this has led to being able to create much more significant technologies.” The rate of innovation on the Web, said Peloquin, is unmatched anywhere else in the software industry, and the newly evolving development technologies out there make the Web a more appealing platform every day.

“One of the things popularized for decades now is that we will be moving more and more toward visual representations of information: 3D spaces where people could move around information,” said Peloquin. “But if things do go more and more toward visual perspective, you’re going to need more and more information that gets onto the client for the user experience. Online games are a



# Everything?

## the best choice

Image by James Isbell

good example. They have pretty significant footprints on the clients, mostly to present information to the user. Most of the data store is on the server. Can you take Web technologies and support these applications? The answer is yes, but you end up downloading so much information that we're talking about more of a deployment model."

In Peloquin's view, the rich Internet application may just be moving to a new highway, while still heading toward the same destination. The lines between standalone and Web-based are becoming increasingly blurry, said Peloquin. Confusing matters further are the three new development environments from Adobe, Microsoft and Sun. Apollo, Silverlight and JavaFX, respectively, are all still on the drawing boards, but all promise the same thing: a blending of desktop and Web-top applications and development practices. With these technologies being prepared for more significant releases later this year, perhaps the Web won't be the singularity of information access that science fiction has predicted.

### STANDALONE CLIENT NOT DEAD

With such compelling new platforms headed to market soon, not everyone is convinced that the standalone client is doomed to a Web-based prison.

Coach Wei, CTO of Nexaweb, said

that he expects the two deployment models to coexist happily forever. "What if your application needs offline access? What if the application needs desktop integration with other applications from the desktop? You may want to do biometrics on the client side. None of these is available to Web applications because none of these functionalities should be exposed to Web applications," said Wei.

"I don't think that's going to change because there is fundamentally a difference between what you can do in your browser versus what you can do in your desktop," said Wei. "Obviously, we all believe browsers will become more powerful going forward, but browser makers should not expose the hard drive to Web applications, because that's a serious security problem. There have to be some limitations for Web applications. There has to be a secure sandbox for Web applications."

Wei also pointed out that memory constraints can still require standalone clients. He said that one of Nexaweb's customers required upward of 100MB of RAM for one of its client applications, and thus the only choice for that development process was to build a standalone client.

And those are precisely the reasons that Adobe, Microsoft and Sun are pouring so much of their resources into plat-

forms that blur the line between browser and desktop. Tim Buntel, senior product marketing manager for ColdFusion at Adobe, said that Apollo, Flash and Flex can harness the Web as well as circumvent its limitations. They can also be used to present rich applications in new and unique ways.

"It depends on the user's requirements. If a user can be connected all the time, then the browser is perfectly fine. The browser has some benefits and limitations because of the sandboxing that takes place in there. You don't get access to the local resources of the desktop," he said.

But those standalone frameworks, such as Apollo, do offer access to those local resources. Security issues aside, such benefits may eventually drive the browser to include new ways to access local resources. While direct access to the hard drive may be considered harmful, direct browser access to resources like sound and video cards may not be, according to the creator of JavaScript.

Brendan Eich, CTO of the Mozilla Foundation, was the original developer of that language and, not surprisingly, sees no limit to the power of the browser. He said that, while Adobe's Flash and Sun's Java are both highly popular browser plug-ins, true accessibility is available only when using AJAX, which requires no additional software on the end users' machines. To this end, he envisions a future where AJAX applications can access all those local hardware systems that can offer speed enhancements for software.

### 'BIG CONVERGENCE WITH THE WEB'

"At Firefox, we want the Web to compete. There's no reason the Web should not have, in a couple years, safe virtual machines and hardware-accelerated 2D and 3D graphics," said Eich. "I think there's going to be a big convergence with the Web. Certainly there are already a lot of Flash games, and all those fancy 3D games need their own engines. But the browser's rendering pipeline, even though it's text-heavy, is getting to the point where it can do flicker-free compositing of multiple objects with high frame rates."

Thus, said Eich, there's no reason that the browser won't be able to compete with Apollo and Silverlight. The question now is how long will it take for the browser to evolve to that point? Unfortunately, even Eich couldn't estimate how long that might take. For now, he is concentrating on rebuilding JavaScript to be more object-oriented, something that should certainly help to push the browser into further competition with the desktop.

The argument for the browser as focal point for technological singularity does have some major hurdles to overcome. Microsoft's Internet Explorer and Mozilla's Firefox are still wildly divergent in their implementations of Web

standards. Those remain a sticking point for Web development, since applications must use compatibility libraries, or be rewritten specifically for each browser. But these disparities may begin to vanish as the years move on, bringing us closer to a single window, rather than a large stained-glass hodgepodge of many small ones. Nexaweb's Wei said that he expects these inconsistencies to slowly vanish over the coming years, making the Web an even more attractive place for rich clients.

### COMPATIBILITY ON THE RISE

"Over the next few releases of browsers, they're going to become more compatible, even though compatibility is going to be a never-ending goal. I don't think there will be a time when all browsers are 100 percent compatible.

Peloquin agreed that current browser dissonance is still a hurdle for developers, though things are getting better. "The browser biosphere is becoming more and more standardized. But I use Firefox and IE, and I still run into Web sites where you see things behave differently."

While browser plug-ins may seem like a solution—a Flash application runs the same in any browser—Peloquin said that external frameworks aren't necessarily the solution to browser discombobulation. "You start with a plain Jane Web browser, and you can slowly accrete widgets onto it, and eventually if you accrete enough of these, you end up with what to me looks like a thick client," said Peloquin. "Flash is a good example because you can do a lot in 2D. If you have the artistic skills, you can do some amazing stuff pretty simply, but if someone wants to run it, they have to install the Flash framework. If you had to install five different things in your browser, you would have to think, 'Is this still better than a thick client?'"

Forrester's Hammond expects that, in most cases, the browser will be the best choice for remotely accessible applications. He said that the many benefits of the browser tend to outweigh those of the standalone client, especially when it comes to ease of access.

One of those benefits far outweighs many of the downfalls of the browser, said Hammond: portability. "I actually think that the reason I tend to go toward the browser in general is because of the nature of the way we tend to use Internet-centric applications. I have four machines at home, and eventually I'm going to have a number of mobile devices. The ability to hit a browser and get it up and running with minimal configuration appeals to me by default," said Hammond.

When it comes to security, Web browsers are a popular target for nefarious hackers. But browsers aren't the most exciting target on a desktop: taking over a browser, in most cases, won't net

continued on page 32 ►



# Clients, Browser Offer Alternatives

◀ continued from page 31

the hacker access to the hard drive, nor the ability to upload a Trojan horse to the client. In fact, according to Nexaweb's Wei, the browser's inherent limitations are actually a boon

for security.

"I think both [browser-based and standalone applications] can be secure, but each of them is right for a certain context," said Wei. "Web applications don't have access to your local

storage on the desktop. Web applications don't have access to some of the client-side peripheral devices." Additionally, said Wei, standalone applications can be more secure due to their obscurity: Millions of peo-

ple use Internet Explorer every day, while only a handful of folks may be using any given standalone client application. Clearly, the more users, the more likely the hack.

Richard Treadway, vice

president of product strategy at Curl, said that security both on the client and in the browser are, at least, known quantities. He also felt that the browser's limitations offer a simpler security model.

"There are problems with both of them, and there are well-known ways of solving them," he said. "With the client/server application, you've got the security of protecting the desktop. In the case of Web-enabled applications, that kind of security isn't much of a factor; even the local data that's stored is kept in a sandbox."

So, while the browser is shouldering out the standalone client for many of the more mundane tasks that are required by enterprises on a daily basis, there are still compelling reasons to stay on the desktop, said Construx's Peloquin.

"We always encourage clients to be aware of what best practices are out there for the area they're working in. I think, speaking in broad terms, it's safe to say for most business- and consumer information-oriented applications, looking at Webified technologies, and in particular how you can make the client fairly interactive with a lightweight download, would definitely be a starting point for people looking to build applications," said Peloquin. "What goes along with that is the implication that your business model is in support of a hosted model. The hosted approach of providing a service through a software system is becoming more ubiquitous."

## SO, WHICH WAY TO GO?

Forrester's Hammond summed it up more succinctly. "If form factor and disconnected use are the prime motivation, desktop is the way to go. If ubiquity is the key, browser is the way to go."

Wei concurred, stating that many users aren't constrained simply by being offline, but rather by bandwidth and performance issues. "Not everybody is always connected. A lot of times it's more than connectivity issues; it's really about performance of the application," said Wei. With more complex and resource-intensive applications, the standalone client may be the only possible solution, he added. ■



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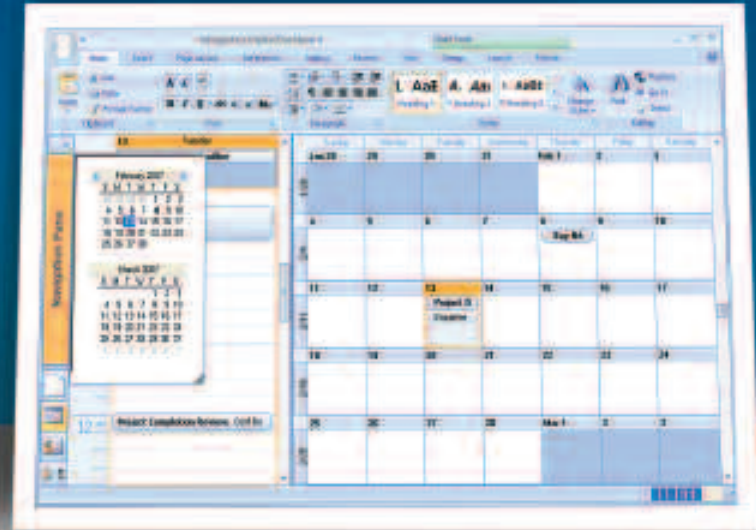
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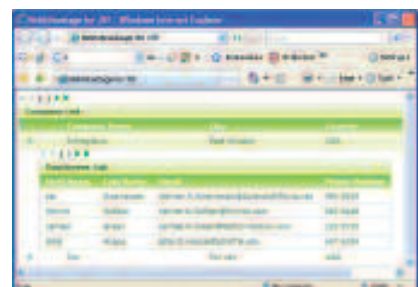
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## FROM THE EDITORS

## SOA Much Confusion

Service-oriented architecture, like all buzzwords before it and those that will come after, has reached that point where its definition has become so broad as to render it meaningless.

Telelogic comes at SOA from a purely architectural standpoint, not as “wares.” Salesforce.com ties SOA into its software-as-a-service platform. Meanwhile, HP and IBM have come to market with new offerings in this space, largely from a tool and platform infrastructure perspective. Stories on each of these announcements appear throughout this newspaper.

Is it any wonder, then, that in a BZ Research report published in the June 1 issue of SD Times, 19 categories were identified as posing the biggest challenge to implementing SOA in an organization? Nearly half of the 504 respondents said “understanding the project scope” was the biggest hurdle to overcome, followed by technological complexity, uncertain ROI and software architecture.

Certainly, the vendors, consultants and analysts are to blame. They are looking to sell products and services, and often don’t provide a complete overview of what’s involved in setting up a services architecture. The message from enterprise managers is loud and clear: Don’t come at me with a SOA story unless you’re prepared to give me the whole story.

The industry press doesn’t get a pass on this, either. By reporting individual vendor handouts that lack context, and serving up analyses that only hit the edges of the issue, it’s virtually impossible for someone heading up a SOA project, or trying to convert an entire organization to SOA, to get the wide-angle view necessary to make good decisions.

Software managers are treading lightly into this arena. Almost 30 percent of the respondents to the survey from BZ Research (a subsidiary of BZ Media, which publishes SD Times) said they still are studying SOA, but have not yet started pilot projects, while another 16 percent said they have no plans to use SOA.

To help our readers better understand what’s happening in the SOA world, and to bring clarity to what is a complex issue, we will launch a new column, called SOA Watch, with the July 1 issue. Read more about it on the facing page.

Enterprises should be cautious about SOA. First-mover position in this case might carry more disadvantages for a business that finds in a year that it has to undo what it’s done, losing what little edge it might have gained by jumping in too soon.

## SOA, SOA Everywhere

One could be forgiven for asking if the “S” in “SD Times” stands for SOA. If you think we’ve been writing a lot about service-oriented architecture in the past few months—to say nothing of this issue—well, we have. And we’ll continue to do so.

Why? Because there’s a lot of news. Everyone and his dog are trying to push their product, their service, their project, their paradigm as the silver bullet for SOA. Also, there’s a lot of confusion caused by a proliferation of news. With all the fuss and bluster, people can lose sight of exactly what SOA is. And if you, dear reader, are confused by all the hype, you’re not alone.

We’re glad that at least one software industry spokesperson is trying to cut through the fog. Jan Popkin of Telelogic is correct when he points out that SOA is better treated as a concept than a technology. We really don’t care if IBM has the better package of services or HP has the glitzier lineup of products. What we care about is that you, the reader, put SOA to work for your outfit if and when it makes business sense.

SOA is here to stay, at least until it morphs into the next hot new thing. Our readers, if they know what’s good for them, will embrace SOA carefully. Implementing SOA for the sake of implementing it will merely lead to frustration and wasted resources. The good news is that for now, everybody’s learning the ABCs of SOA. Someday, however, the “S” will go back to being plain old Software. ■

## SOA What?

So things are different now. Java development itself is less innocent. No more goofing around with Applets. Some of the more passionate have flown the coop over to Ruby. Some to PHP. It’s understandable. Tons and tons of programming jobs have flown overseas to India and other low-cost development centers.

There are some serious attempts to “professionalize and operationalize” Information Technology, for example ITIL. And your pointy haired boss is coming back from conferences saying, “We have to do service-oriented architecture.” So what?

**The rise of “XML metadata.”** Everybody has played with XML. They might not know it, but they have. Big deal. As you know, XML is a way to make a structured declaration. What do you get out of the structure? Well, you get parsability, that’s what. The structure of an XML declaration lends itself to machine-based traversal.

Now there are XML standards that declare how things should be in many areas, including business processes such as BPEL and BPMN. This creates a situation where business users expect to be able to make XML declarations and have those declarations directly controlling and orchestrating live IT systems.

People say that XML enables declarative programming. Of course, as we know from real life, declaring things doesn’t necessarily make them so.

**XML and agility.** Letting business users deploy XML that orchestrates live IT services is certainly very dangerous!

But really that’s the topic of conversation everywhere I go. Business processes have a lot of value to business people, and they want simple ways to declare what they want to have happen, and they want to have sets of simple, coarse-grained, loosely coupled, standards-based, interoperable, federated, distributed software services that they can use to assemble solutions.

**What happens to metadata declarations?** Well, increasingly, there’s a layer of metadata declarations that are being repositored in a layer outside the Source Code Control System. This is the emergence of the SOA Registry Repository.

First of all, the basic pattern of having a “system of record” for XML declarations associated with services and with SOA is a fundamental use case for the SOA Registry Repository. This means having one lookup location for XML files associated with the whole service life cycle.

Second, this system serves as a validation checkpoint. So when elements are put in there, they are checked for enterprise namespace violations, interoper-

ability, security policy and other sanity controls, including determining if they are well formed.

Third, this system begins to manage approval life cycles for changes, including change management, impact analysis, notifications, deprecations, version management, custody transfers and other types of workflows.

Also, since these systems contain assertions about policies, there will be interoperability between this system and external policy enforcement points, such as XML Gateway appliances, ESBs, Web service fabrics, integration hubs, adaptors, custom transport mechanisms and other such brokering systems.

**XML is code; just don’t tell anyone.** Well, so the cat’s out of the bag. XML declarations are actionable. In fact, since the SOA Registry Repository actively parses XML and can take action based on any attribute, field, tag or property, the SOA Registry Repository is essentially an execution environment or container for XML system behavior. Some XML artifacts are expressed in other runtime environments, such as runtime policies.

So what does this imply? XML is code! By declaring something, does that make it true? Sometimes. But only when there’s a system that takes action based on those declarations. So if it’s code, then that explains why it has its own life cycle. But why does it have its own repository? Why can’t we just put the XML in the source code control system and be done with it?

**Why XML has its own life cycle and repository.** XML has its own life cycle and repository because it’s a shared asset. In SOA, services have to be managed across design time, deployment, testing, staging, production and operations, and each stage has its own logic, declarations, assertions and mechanisms.

But the thing about a business service is that all these bits of logic need to work together to provide a single consistent experience for the service consumer. If there’s a problem with one part or with the way some parts work together, that service consumer experience is compromised.

So, really, this new layer spans the life cycle in ways that pure-code software development life-cycle stuff doesn’t. But it goes even further. Federated registries and repositories span across multiple business silos, business units, divisions, agencies, ministries or even across companies, and allow a potential scale of collaboration, reuse, platform development and composition that was previously difficult but not impossible.

**Sharing and federating logic.** In

Miko Matsumura





order to establish common agreements and enforceable relationships across life-cycle units as well as across enterprises, there needs to be a way to federate logic. This means that one person's logic needs to be composable with another person's logic even if they don't work for the same boss.

There are two schools of thought. The first is one of declare-and-resolve. In this paradigm, XML assets are declared openly within the Registry Repository system, and declarations that are inconsistent with one another are just going to happen, catch as catch can. If one policy overrules another, the one that was applied most recently wins.

The second school of thought is more robust. It is based on the use of rule engines to sort out the interaction between logical assertions made by multiple authorities. It's really the key to federating logic. There's a lot of neat things you can do with a rule engine, and the representation of logic within a rules engine is unambiguous, and yet multiple rule systems can easily interact within it.

The reason why this problem of sharing and federating logic is becoming increasingly important is that SOA is hoping to create collaboration across silos, and that each silo has to have a way of expressing its own logic but also be able to fit into the logic of the enterprise as well as to play well with other silos.

#### Why can't you do it with crosscuts?

There are lots of cool technologies like Spring and aspect-oriented programming for dependency injection. These allow you to transform code through crosscutting concerns. This will work for a lot of big things, but it's hard to unify it.

SOA, now what? SOA is going to be a pain. It's going to involve more meetings. You won't be able to just hide in your room and crank out code anymore unless you work in an offshore location for a lot less money. It's going to require developers to take responsibility and to be held accountable for things that may not even be entirely under their control, such as runtime operational behavior of systems.

It's going to require design of services for almost random users who may be doing things that are not intended by the original design. This will make code feel less elegant. It may cause you to descend into version management hell.

It's going to require developers to go through formal processes to check code and artifacts into external enterprisewide systems such as registries and repositories. It's going to require formal approval processes and agreements to use standards you may not like and might not yet understand. It's going to require talking to self-styled architects. It's going to require you to learn about other people's code and how to reuse it, even if it would be easier to build the whole thing yourself. ■

*Technology evangelist Miko Matsumura is vice president of SOA products at WebMethods, a subsidiary of Software AG.*

## LETTERS TO THE EDITOR

# Who's Defining Industry Terms?

Please do not let the marketing folks at Salesforce.com run off with another software acronym and confuse the general business community ["Salesforce Serves Up Some SOA," SD Times News on Thursday, May 24.]

SOA—service-oriented architecture—describes an environment that uses loosely coupled services to support the requirements of business processes and users. All Salesforce is doing is giving finer-grain access to its existing processes, which I highly applaud, and I congratulate them in figuring a way to monetize it.

But, I do not want them defining the term for the entire business community as they are doing for SaaS (software as a service). I recently listened to a Webcast sponsored by Salesforce that attempted to make me believe that the only way I could deliver SaaS was to work within their framework.

As a developer of a Web-native software application that we host and operate for our customers over the Internet, I found that to be very insulting, as would, I believe, my fellow vendors.

**Donald Griffing**

First Degree Solutions  
Minneapolis

## BUZZ OFF

In response to the poll question "Which buzzwords do you care least about?" posted on www.sdtimes.com for the week of May 28, reader Richard Cardona writes:

Buzzwords I care the least about:

1. XML – XML is ubiquitous. There's no need to claim XML (Now with XML!! Export to XML!!)
2. SOA – How about Service Oriented World?
3. Object-Oriented – "JavaScript 2.0 will evolve...into a more object-oriented development environment" means nothing to a Ruby programmer.
4. Virtual – Virtual networks, virtual storage, virtual applications, virtualization. This sounds a lot like "digital software." Who cares?
5. Architecture – Oh, where do I begin. SOA is DOA. "It begins with architecture." Data Architecture. Project Architecture. Network Architecture. Software Architecture. Hardware Architecture. All worthless monikers.

Letters to SD Times should include the writer's name, company affiliation and contact information. Letters become the property of BZ Media and may be edited. Send to [feedback@bzmedia.com](mailto:feedback@bzmedia.com).

## 'SOA Watch' Column to Debut July 1

The term service-oriented architecture, or SOA, means different things to different people, and has created much confusion among enterprise development managers. To help make sense of this emerging trend, SD Times will launch a new column, titled SOA Watch, in the July 1 issue.



Written by industry veteran David Linthicum, SOA Watch will look at the architectural issues, connectivity questions and tooling choices that arise from SOA projects. With recent studies showing that more organizations than ever

before have undertaken SOA projects or are considering them, being able to sort through vendor-speak and mixed messages is critically important.

Linthicum is CEO of The Linthicum Group, a consulting organization dedicated to SOA implementation and strategy. He is the former CTO of Mercator Software, SAGA Software and other companies, and has written numerous books. His knowledge of the subject and clarity of writing will help anyone getting started with SOA to find the right path.

## Why Are Companies Adopting BPM?

A recent research brief by Aberdeen Group senior vice president and technology market research director Ralph Rodriguez explained that businesses feel constrained by their current applications and their perceived inflexibility.

But instead of starting over, companies are turning to business process management (BPM), and using SOA to glue BPM to existing enterprise applications, the firm reported.



**SD Times**  
The Industry Newspaper for Software Development Managers

Software Development Times  
Issue No. 176  
June 15, 2007

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# Office 2007 UI. Accelerated.

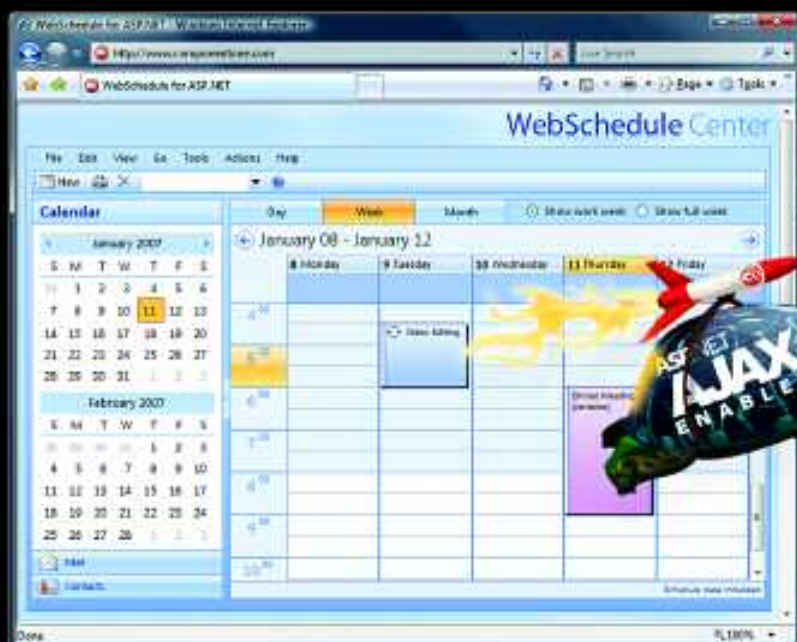
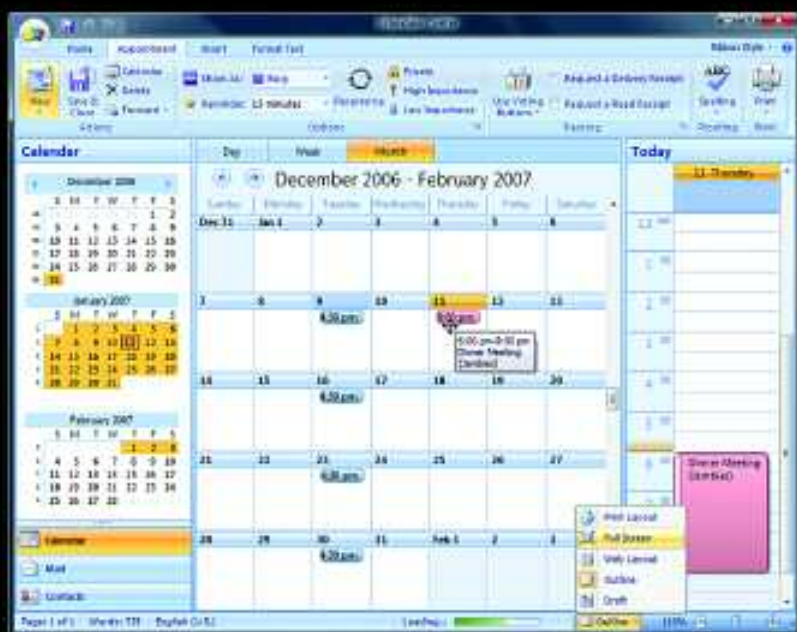
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# Integrate, Then Mutilate, Your Code

One of the most important trends emerging in software development is the adoption of continuous integration. While developers, especially agile developers, have known of the benefits of continuous integration since the late 1990s, only now is it starting to gain real traction.

Part of the long delay, I believe, is the result of the misleading name, which communicates little about the actual process. Continuous integration (CI) is neither continuous, nor does it really integrate anything. In its most basic form, CI is the practice of building the entire project whenever code is checked into the SCM. This baseline definition is a little limited as all CI products also can run unit tests on the completed build. They then use some notification system to alert developers if the build has been broken or if unit tests have failed.

The key benefit of CI is that broken code is flagged right away. This enables the developer who checked it in to get immediate feedback, rather than waiting for the nightly (or weekly build), when the details of the code's behavior have already begun to grow dim. By immediate detection of the problems, resolution can be implemented at the earliest possible point, which is also the least expensive moment to do so.

There are many CI packages available on the market today; most of them are free, open source tools. The most well known is CruiseControl ([cruisecontrol.sourceforge.net](http://cruisecontrol.sourceforge.net)), although it has many open source and commercial competitors. (For an extensive comparison of the features of the major products, go to [damagecontrol.codehaus.org/Continuous+Integration+Server+Feature+Matrix](http://damagecontrol.codehaus.org/Continuous+Integration+Server+Feature+Matrix).)

Recently, the interest in CI by commercial vendors has begun to pick up steam. Agitar bundles CruiseControl in its flagship AgitarOne product. And Borland just released Gauntlet, which has numerous important features that I'll touch on in a later column.

Unlike most server-oriented software, CI products are fairly easy to install and configure, and they integrate easily with most major SCM systems in use today. Moreover, CI servers run happily on low-horsepower hardware. After all, they monitor code repositories, kick off builds and various scripts, and then report results: nothing terribly demanding.

If you install a CI package, you'll quickly see not only the benefits I just

mentioned, but you'll also discover that most products offer additional functionality that's pretty compelling. For example, many CI servers run code verifiers and static code analyzers, and can reject code that falls short of shop standards. When the CI servers run unit tests, they also collect coverage data. This data and numbers garnered from other tools can be presented in either an integrated dashboard-style Web interface or a series of reports hosted on the server. The packages also offer extensive e-mail notification systems.

CI servers rely on plug-ins to do much of their work. They generally support build systems such as Ant and Maven, so it's easy to get them to build software using the processes you already have in place. You can add more steps either through a CI plug-in or through your preferred build system. Because of this feature, I think, builds will move increasingly to a centralized CI server, rather than being distributed among participating developers or hosted on traditional build servers that do little more than compile and link.

The ability to run unit tests as part of the integrity validation of the codebase

is, of course, an important feature. However, there is little that can tell the developer or the manager whether the tests are any good. Even high levels of code coverage are no proxy for test quality (quantity, yes—but not quality).

One tool that helps identify weaknesses in unit test coverage is Jester ([jester.sourceforge.net](http://jester.sourceforge.net)). It represents a malicious idea that beneficially mutilates your code. Once your code runs JUnit tests cleanly, Jester will change one meaningful thing in your code, recompile it and rerun your unit tests. If the tests still run cleanly, Jester points out that a unit test is needed. If the tests fail, Jester moves on to another tweak. Given a long enough run, Jester will find lots of seams in your code that are not covered by tests. This will enable you to spot naked code that was not tested for an unforeseen eventuality. If your code can stand up to multiple Jester runs, chances are good you're correctly testing all the behaviors you need to be checking. Versions of Jester exist for Python (Pester) and C# (Nester).

The great joy of writing code today is that we have wonderful tools that previous generations never dreamed of. CI and Jester are two fine examples. Make them part of your site's build cycle. ■

*Andrew Binstock is the principal analyst at Pacific Data Works. Read his blog at [binstock.blogspot.com](http://binstock.blogspot.com).*

## Integration Watch



Andrew Binstock

# FUD and Dud

Generally, the business goings-on of Microsoft are sufficiently distanced from the facts of their technologies that I leave business analysis to others. Reciprocally, the Wall Street Journal hardly ever takes a stand on threading models. Two recent items, though—the ugly patent-violation claims against Linux and the staggering US\$6 billion purchase of aQuantive—are impossible to ignore, going, as they do, to the greatest shortcoming that a technology company can suffer: appearing to be unable to compete on merit.

Given the Kafka-esque absurdities of the patent system, it is entirely possible that Microsoft's intellectual property portfolio contains some claims that are duplicated in Linux components. Nonetheless, the patent-violation claims made by Brad Smith and Horacio Gutierrez in an interview with Fortune magazine are textbook examples of FUD. Sowing "fear, uncertainty, and doubt" was, remember, a contemptible practice originally deployed by IBM to maintain dominance. The claims of Smith and Gutierrez, with specific numbers associated with various subsystems, were not the result of a plausibly deniable slip during a question-and-answer period, but rather were as accidental as

a carrier group in the Strait of Hormuz. The McCarthy-like refusal to be specific ("I have here in my hand a list of names...") was additionally off-putting.

Yet the possibility of a serious Microsoft assault on IP violations in open source software is minimal. At the risk of overstressing the military metaphors, a strike against Linux would draw retaliation from IBM, Novell and any number of minor powers. The logic of the Cold War and mutually assured destruction applies.

The aQuantive acquisition is less clear-cut in its noncompetitiveness, but the numbers don't seem to add up. The \$6 billion aQuantive purchase is a direct response to Google's US\$3 billion acquisition of DoubleClick. aQuantive earned US\$442 million in 2006. Microsoft paid around 14 times that; Google bought DoubleClick for around 10 times that company's US\$300 million revenue. The premium paid relative to earnings is startling enough, but when you look at just the ad-serving components, it gets even more stark. aQuantive's Atlas Suite earned only around \$152 million in 2006, a level not much greater than

DoubleClick's ad-serving earnings in 2004 prior to being taken private. (The majority of aQuantive's revenue comes from Avenue A/Razorfish, which Microsoft will almost certainly sell or spin off.) Since DoubleClick serves about 50 percent more impressions per month than Atlas, and DoubleClick has already sold off most of its non-ad-serving components, it's a virtual certainty that Google got a much better rate per ad impression than did Microsoft.

Of course, acquisitions are not just about today's revenue but future earnings. One buys infrastructure, technology and talent. That makes sense for Google—the addition of the few thousand DoubleClick employees seems a good strategic fit for a company of fewer than 10,000 employees. Microsoft, on the other hand, already has 70,000 employees and for some time, the importance of ad-serving has not exactly been a secret.

It's one thing having trouble developing the next version of the world's most popular operating system, or developing search algorithms superior enough to grow market share, but an ad-serving

network? Without trivializing the implementation of such a system, it falls within the realm of what one would expect Microsoft to be able to build internally. The choice to instead spend something like a decade's worth of revenue to acquire a division (and, undoubtedly, a passel of amply rewarded middle and senior management eager to spend energy carving out fiefdoms) is a disheartening vote of no confidence in Microsoft's ability to nurture "intrapreneurs."

It had to do with timing, you say? Buying share in a market that's still growing rapidly ultimately produces greater total revenue? To a company of Microsoft's size, this acquisition is a "tuck in"? Perhaps.

Sowing FUD about open source software might (might) work with the readers of Fortune, but it has lost its credibility with software development professionals. "Buy, don't build" may be attractive to Wall Street, but not to elite young programmers considering where to spend their careers. Technology companies do not thrive or deteriorate solely on the basis of whether a strategy can be justified to an MBA. There is another group whose support is absolutely vital. "Developers! Developers! Developers!" as some have put it. ■

*Larry O'Brien is a technology consultant, analyst and writer. Read his blog at [www.knowing.net](http://www.knowing.net).*

## Windows & .NET Watch



Larry O'Brien



# It's a Sub, Sub, Sub, Sub World

The days of delivering software are numbered. This issue's Special Report touched on one of the reasons: The many different ways of creating rich Internet applications has blurred the usability line between native apps (such as those compiled for Win32, Mac OS X or Linux binaries) and apps that run via a special Internet-enabled client (such as a Web browser or Flash player).

But that's not the only reason that the software business is going to be changing from a code-test-and-ship model to a hosted software-as-a-service model. There are three other factors, beyond the pretty user interfaces, that are worth considering: better cash flow, better customer lock-in and better protection of intellectual property. Small applications companies, take heed.

Traditional software is sold using several business models. Once upon a time, retail packages went through the channel to distributors and on to retail stores. Each organization that handled the software marked it up significantly, to the point where the software company might receive only 10 percent to 20 percent of the purchase price. The Internet, of course, brought the direct-to-download software model, where customers buy the software direct from the manufacturer. You either download the software, or the software maker ships you a box. On the upside, the software maker keeps all the dough.

The flip side, of course, is that you don't have the channel pushing your product. But frankly, with the exception of a few best-sellers in each category, the channel isn't pushing wares from small companies anyway. The

other downside, though, is that it's hard to get money from the customer later, unless there's a truly compelling upgrade. The subscription model for software can help small companies keep more of their revenue, and ultimately, result in greater total returns from the customer.

## Industry Watch



The challenge, of course, is to provide a robust infrastructure, good support and cutting-edge functionality. But unlike upgrades, subscriptions can be forever, after you've crossed the infrastructure hurdle.

Once you've got them hooked, you'll have the customers forever. That's especially true if you've got their data (like many hosted investment Web sites, or databases like QuickBase), or if you've got their application code (like Salesforce.com). The costs of switching away from a hosted platform are tremendous.

In part, that's because many customers stumble into hosted platforms in a skunkworks manner, the way that companies ended up with their first Macintoshes two decades ago. Someone discovers that a hosted service will solve a problem for free, or almost free—and unlike going to IT, you can solve the problem yourself, and you don't need to wait six months to get approval. The user tells her colleagues. They use the service. Somewhere along the way, they upgrade from the free "personal" version to the paid "professional" version with more features, better customization and a monthly hit to someone's credit card. That's what expense accounts weren't made for. But how many people have a skunkworks eFax number on their corporate business card?

As more and more users—and more and more data—go onto the system, finally IT notices, and bowing under pressure (and because they know a good thing when they see it), they sign up for a managed "enterprise" license. They're hooked. Forever. *Ka-ching!* That's a powerful reason to get into the hosted software business.

With hosted software, you never have to show your binaries. With the exception of account theft, it's unlikely that piracy is going to be a huge concern for the likes of QuickBase, Salesforce.com or eFax. Stolen Windows or Office or Photoshop license keys simply don't apply in this world, where each user has to have his or her own account. That alone makes the hosted software model attractive for applications companies considering a move into developing markets, especially those where broadband penetration goes deeper than the rule of law.

In fact, who needs broadband? Hosted applications that can be accessed via mobile phone can be thought of as the equivalent of putting a full SOA-enabled data center in your pocket. With applications bound to a mobile device, carriers and application developers can turn the subscription model into a bonanza. No more software distribution, no more pirated CD-ROMs, no more \$49 copies of Office being sold via spam.

Software as a service: Customers, I believe, are starting to really like the fact that they don't have to install software, that the "cloud" does the number crunching, and that the cost is generally affordable. But the real boon is for the small software company, for which SaaS is probably going to be the next great business model. ■

*Alan Zeichick is editorial director of SD Times. Read his blog at [ztrek.blogspot.com](http://ztrek.blogspot.com).*

*David Rubinstein returns next issue.*

## BUSINESS BRIEFS

**Salesforce.com** has created the AppExchange Venture Network to bring funding, education and networking services to entrepreneurs looking to build out software-as-a-service companies. Start-up companies can learn about multi-tenant architectures, which Salesforce uses behind its platform; revenue models for on-demand software; CRM and other topics. A number of venture capital firms already have signed on with the network, which brings potential investments closer to the entrepreneurs involved. Salesforce also runs the AppExchange Incubator program, under which the company provides office space and a physical infrastructure upon which on-demand applications can be created. Already, the company claims, more than US\$225 million has been raised by two dozen companies in the program . . . Businesses throughout the United States will spend roughly US\$9 billion on mobile applications by the year 2011. U.S. businesses are expected to spend roughly \$3.8 billion this year, according to **Compass Intelligence**, a Scottsdale, Ariz.-based high-tech

consulting and marketing analytics company. Major trends noted in the report include growth in productivity-based applications and growth in sophisticated and business-oriented devices. The study said that professional services and government industries are expected to represent 37 percent and 22 percent, respectively, of organizations purchasing mobile apps in 2007. Enterprise businesses, meanwhile, are expected to purchase 42 percent of mobile applications from 2006 to 2011 . . . **SOA Software** has agreed to sell its professional services business to Pune, India-based **Zensar Technologies** for US\$24.9 million in cash as part of a strategic relationship between the companies. SOA Software entered into the deal so it can focus on its enterprise software business. SOA Software sells the SOA Infrastructure Suite, and the money it gains from the spin-off will allow it to further pursue its efforts in the area of Active SOA Governance, which the company advocates for governing Web services in the enterprise from design through runtime. ■

## EVENTS CALENDAR

<b>USENIX '07 Annual Technical Conference</b>	June 17-22
Santa Clara USENIX <a href="http://www.usenix.org/events/usenix07">www.usenix.org/events/usenix07</a>	
<b>HP Software Universe</b>	June 18-22
Las Vegas HEWLETT-PACKARD <a href="http://www.hp.com/go/softwareuniverse">www.hp.com/go/softwareuniverse</a>	
<b>BREW 2007 Conference</b>	June 20-22
San Diego QUALCOMM <a href="http://brew.qualcomm.com/brew/brew_2007">brew.qualcomm.com/brew/brew_2007</a>	
<b>SOA World/Enterprise Open Source Conference &amp; Expo</b>	June 25-27
New York SYS-CON <a href="http://www.soaosconference.sys-con.com">www.soaosconference.sys-con.com</a>	
<b>Web Design World</b>	July 9-11
Seattle 1105 MEDIA <a href="http://www.ftponline.com/conferences">www.ftponline.com/conferences</a>	
<b>Open Source Convention</b>	July 23-27
Portland, Ore. O'REILLY MEDIA <a href="http://conferences.oreillynet.com/os2007">conferences.oreillynet.com/os2007</a>	
<b>SCO Tec Forum</b>	Aug. 5-7
Las Vegas SCO GROUP <a href="http://www.sco.com/2007tecforum">www.sco.com/2007tecforum</a>	
<b>SIGGRAPH</b>	Aug. 5-9
San Diego ASSOCIATION FOR COMPUTING MACHINERY <a href="http://www.siggraph.org/s2007">www.siggraph.org/s2007</a>	
<b>LinuxWorld</b>	Aug. 6-9
San Francisco IDG WORLD EXPO <a href="http://www.linuxworldexpo.com">www.linuxworldexpo.com</a>	
<b>SHARE</b>	Aug. 12-17
San Diego SHARE <a href="http://www.share.org">www.share.org</a>	
<b>Agile 2007</b>	Aug. 13-17
Washington, D.C. AGILE ALLIANCE <a href="http://www.agile2007.com">www.agile2007.com</a>	
<b>BEAWorld</b>	Sept. 10-12
San Francisco BEA SOFTWARE <a href="http://www.bea.com/beaworld">www.bea.com/beaworld</a>	
<b>VMworld 2007</b>	Sept. 11-13
San Francisco VMWARE <a href="http://www.vmware.com/vmworld">www.vmware.com/vmworld</a>	
<b>Secure Development World</b>	Sept. 12-13
Alexandria, Va. SDW <a href="http://www.secureddevelopmentworld.com">www.secureddevelopmentworld.com</a>	
<b>Software Test &amp; Performance Conference</b>	Oct. 2-4
Cambridge, Mass. BZ MEDIA <a href="http://www.stpcon.com">www.stpcon.com</a>	
<b>EclipseWorld</b>	Nov. 6-8
Reston, Va. BZ MEDIA <a href="http://www.eclipseworld.net">www.eclipseworld.net</a>	

For a more complete calendar of U.S. software development events, see [www.bzmedia.com/calendar](http://www.bzmedia.com/calendar).

Information is subject to change. Send news about upcoming events to [events@bzmedia.com](mailto:events@bzmedia.com).





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